Programmatic Environmental Assessment

Republican River Basin and High Plains Region Conservation Reserve Enhancement Program Agreements for Colorado

Farm Service Agency
United States Department of Agriculture

DRAFT

APPENDICES ONLY

March 2006

APPENDIX A: GLOSSARY

This page intentionally left blank

Alluvial - Of, relating to, or found in alluvium.

Aquifer - An underground bed or layer of earth, gravel, or porous stone that yields water.

Bedrock – The solid rock underlying soils and the regolith in depths ranging from zero (where exposed by erosion) to several hundred feet.

Biodiversity - The number and variety of organisms found within a specified geographic region.

Conservation Practice – NRCS approved agricultural practices and management methods used to treat natural resource problems on agricultural lands (soil, water, air, plants, and animals).

Conservation Priority Area – areas so designated by the Deputy Administrator of Farm Programs, Farm Service Agency with actual and adverse water quality or habitat impacts related to agricultural production activities or to assist agricultural producers to comply with Federal and state environmental laws and to meet other conservation needs, such as for air quality.

Critical Habitat - The specific areas within the geographical area occupied by the species on which are found those physical or biological features that are both essential to the conservation of federally threatened and endangered species. Critical Habitat is designated by USFWS and is protected under the ESA.

Decomposition – Chemical breakdown of a compound (e.g. a mineral or organic compound) into simpler compounds, often accomplished with the aid of microorganisms.

Denitrification – The biochemical reduction of nitrate or nitrite to gaseous nitrogen, either as molecular nitrogen or as an oxide of nitrogen.

Discharge - The flow of surface water in a stream or canal or the outflow of groundwater from a well, ditch, or spring.

Endangered species - Any species that is in danger of extinction throughout all or a significant portion of its range, other than an officially designated insect pest. Endangered species are so designated by USFWS and are protected under the ESA.

Environmental Justice – Federal government requirement to identify and address disproportionately high human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

Eolian - Relating to, caused by, or carried by the wind.

Erodibility Index - A numerical value that expresses the potential erodibility of soil in relation to its soil loss tolerance value without consideration of applied conservation practices or management. (*Defined at 7 CFR 12.2*)

Extreme Poverty Area – One where the percentage of residents with incomes below the poverty level is greater than 40 percent.

Floodplain – Low-lying land subject to inundation from overflow of the rivers or lakes with which they are associated.

Habitat fragmentation - The breaking up of habitat into discrete islands through modification or conversion of habitat by management activities.

Infliltration – The downward entry of water into the soil.

Intermittent - Coming and going at intervals; not continuous.

Invasive species - Any species that is not native to a given ecosystem, and whose introduction causes or is likely to cause economic or environmental harm and/or harm to human health.

Loess – Material transported and deposited by wind and consisting of predominantly silt-sized particles.

Minority Population – Defined by race, ethnicity or a combination of the two. Per CEQ can include 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.

Miocene Era – The geologic time, rock series, or sedimentary deposits of the fourth epoch of the Tertiary Period, characterized by the development of grasses and grazing mammals

Photosynthesis – The conversion of light energy to chemical energy; the productions of carbohydrates from carbon dioxide and water in the presence of chlorophyll by using light energy.

Phytoplankton - Plankton possessing the ability to create energy from the sun.

Pivot circle – The area covered by a center-pivot crop irrigation system.

Pivot corners – The areas not covered by a center-pivot irrigation system if the pivot circle is contained inside a square whose length equals the diameter of the circle.

Poverty Area - USCB census tracts where at least 20 percent of the residents are have incomes below the poverty level.

Recharge - Replenish a water body or an aquifer with water.

Riparian - Of, on, or relating to the banks of a natural course of water.

Saturated – State of soil when all pore spaces are full.

Sedimentary – Rock formed from materials deposited from suspension or precipitated from solution and usually being more or less consolidated. The principal sedimentary rocks are sandstones, shales, limestones, and conglomerates.

Seepage – The act or process of seeping.

Sensitive species – Plant or animal species which are susceptible to habitat changes or impacts from activities; used as a term for species of special concern by some States.

Suspended sediments – Fine material or soil particles that remain suspended by the current until deposited in areas of weaker current.

Traditional Cultural Property – A property that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that are rooted in that community's history, and are important in maintaining the continuing cultural identity of the community. In most cases, traditional cultural properties are associated with Native Americans but may also be associated with other sociocultural or ethnic groups.

Threatened species - Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range so designated by FWS and protected by the ESA.

Uplift – A rise of land to a higher elevation (as in the process of mountain building).

Watercourse – A natural or artificial channel through which water flows.

Watershed - The whole region or extent of country which contributes to the supply of a river or lake.

Wetland - Areas that are saturated by surface or ground water 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. Wetlands generally include swamps, marshes, bogs, and similar areas. (*Defined at 33 CFR 320-328.3*)

This page intentionally left blank

APPENDIX B: CREP AGREEMENTS AND AMENDMENTS

Colorado High Plains CREP Proposal

Prepared by the State of Colorado

Project Co-Leader
Tim J. Davis
Colorado CREP Administrator
Colorado Division of Wildlife

Project Co-Leader and Lead Author
Ed Gorman
Small Game Manager
Colorado Division of Wildlife

Project Counties:

Sedgwick, Phillips, Logan, Yuma,
and Kit Carson Counties
(addition of Morgan, Washington, Cheyenne, Prowers, Baca, and Kiowa Counties subject to amendment and CRP acre availability)

September 20, 2005

TABLE OF CONTENTS

Colorado's High Plains CREP Proposal…….. 1

Table of Contents……..2

Section 1: Abstract…….3

Section 2: Existing Conditions…… ……4

Section 3: Agriculture Related Environmental Impacts……9

Section 4: Project Objectives …….13

Section 5: Project Description ……..…14

Section 6: Cost Analysis……..16

Section 7: Monitoring Program…….18

Section 8: Public Outreach and Support…… .20

Section 9: Compliance with Other Laws……..……...21

Exhibit A – Project Area Map…..……22

Exhibit B – Ogallala Aquifer……..……23

Exhibit C – Streams and Drainages……...……24

Exhibit D –Colorado 8 Digit HUC Watersheds …..……25

Exhibit E – Ring-necked Pheasant Range……..26

Exhibit F – Greater Prairie Chicken Range……..27

Exhibit G – Conservation Priority Areas in Colorado……...…..28

Exhibit H – Wheat and Wheat/Fallow Guidelines……29

Exhibit I – CREP/Wheat Fallow Arrangements……...31

Exhibit J – FSA, NRCS and non-Federal Cost Estimates……....33

Exhibit K– EQIP Residue Management Guidelines……..37

Exhibit L – Pheasant Habitat Improvement Program (PHIP) Contract…….…...38

Exhibit M – Fertilizer and Chemical Reduction Tables……39

Exhibit N – Partners and Letters of Support…….40

Literature Cited…… ……41

Section 1: Abstract

The High Plains region of Colorado is an area with significant natural resources, prime farm land, and an economy that is heavily dependent on agriculture. The project area encompasses parts of five counties in extreme eastern Colorado from Sedgwick County in the northeast to Kit Carson County in east central Colorado. The region's landscape is composed primarily of dry-land and irrigated crops, some large monolithic tracts of CRP, and remnant native prairie. Some dryland farmers in the region have adopted a crop rotation utilizing farming practices with multiple crop cycles as opposed to the historical wheat-fallow cropping system. These new, more intense cropping systems create a need for additional herbicides, fertilizers and early spring disturbances. Producers still using wheat-fallow cropping rotations have converted to shorter varieties of wheat which leave little residual cover after harvest. Residual herbicides which remain active in the soil for sometimes over a year are commonly applied under both cropping systems.

The combination of all these factors has resulted in pheasant and other ground nesting bird declines throughout the project area. Secure undisturbed nesting cover, brood habitat, and year long survival habitat in close proximity to each other is paramount to sustaining pheasant and other ground nesting bird populations. These habitat components have been compromised over the years through more intense agricultural practices, increased field sizes, the addition of multiple crops, and the introduction of dwarf varieties of wheat. Additionally, the more intense crop rotations which require increased fertilizer and herbicide treatment under the multi-cropping system contribute to the potential for increased leaching and decreased soil moisture. The shorter wheat varieties in the wheat-fallow system contribute to an increase in soil erosion and a decrease in the ability for the soil to store moisture, a critical component in this arid region.

This Conservation Reserve Enhancement Program (CREP) proposal targets those farmers that have retained a wheat-fallow cropping system and those that are currently utilizing a multi-cropping rotation that, given comparable profits, may wish to convert to a wheat-fallow system. If implemented, this proposal would improve water quality by reducing the amount of agricultural chemicals applied across the High Plains. It would increase soil moisture and reduce surface run off. It would reduce soil erosion and improve habitat juxtaposition for important economic game and non-game wildlife species by providing small parcels of permanent cover adjacent to environmentally friendly managed crop fields. This proposal also provides compensation to farmers who enroll in this program for permitting access for small game hunting. The proposal would boost the regional farm economy by providing producers with a new source of state and federal conservation incentives. Economic benefits would also be derived throughout the region from the increase in dollars spent within the project area for pheasant hunting.

This proposal describes a cooperative program that focuses on providing permanent cover for wildlife while maintaining environmentally friendly wheat fallow farming over a larger area, and adding economic stability to producers within the region. This concept uses multiple federal and state programs to address a variety of resource concerns, while maintaining the agriculturally based viability of the region. The CREP and state cost-shares and state incentives would provide for the establishment of permanent cover, while the Delayed Minimum Tillage (DMT) would be used for management purposes on adjacent acres – thereby increasing the area of environmental benefit beyond the CREP acres. Reducing herbicide use, maintaining adequate amounts of permanent and residual cover for habitat, improving water quality, preventing soil erosion, and providing public access would be the main objectives of the CREP.

CRP practices installed on the CREP acres will include, but may not be limited to CP-4D, CP-12, and CP-24. State cost-share and incentives on CREP acres will be provided through the Colorado Division of Wildlife's Pheasant Habitat Improvement Program (PHIP) and the Walk-In Access Program (WIA). CRP cover practices on CREP acres will target 30,000 acres within the project area, while DMT incentives will be applied to an additional 69,000 acres through the Environmental Quality Incentives Program (EQIP) administered by NRCS, for a total of 99,000 acres directly impacted by this cooperative program. The cost of the program over 14 to 15 years on the 30,000 acres of proposed CREP is estimated at $25.7 million, to be divided 79% by federal FSA and 21% by state sources. Significant in-kind contributions will be provided by the Colorado Division of Wildlife, Pheasants Forever and other agencies and organizations.

Section 2: Existing Conditions

The proposed geographical range of the Colorado High Plains Conservation Reserve Enhancement Program (CREP) encompasses parts of five counties in extreme eastern Colorado including all or parts of Sedgwick, Phillips, Logan, Yuma, and Kit Carson counties (Exhibit A). It includes parts of 2 major river courses; the South Platte and the North and South Fork of the Republican River, and numerous seasonal drainages and overlies significant portions of the Ogallala aquifer (Exhibit B). Seasonal and event-driven drainages within the project area include Frenchman Creek, the Arickaree River, and Big Sandy Creek, (Exhibit C). Groundwater resources provide the vast majority of water within the project area. The Ogallala aquifer provides nearly all water used for irrigation or domestic use, and recently, has shown declines in both quantity and quality. Recharge rates for the aquifer often amount to inches/year (<0.5 inches per surface acre), while depletion rates are measured in feet/year, with estimates around 1-2 feet per year While Ogallala aquifer water is generally sufficient for irrigation, in some areas it does not meet Environmental Protection Agency (EPA) drinking water quality standards, with common pollutant concentrations being sulfate, chloride, selenium, fluoride, nitrate, and dissolved solids (High Plains Water Conservation District, 2004). Surface water storage reservoirs exist within the project area, but water quantity is impacted by climatic events such as drought, and nearly all are appropriated for irrigation use. Since 1999, nearly all reservoirs within the project area and adjacent to the project have been subject to extreme water depletions. AN HUC map is included in Exhibit D.

Native vegetation varies depending on location, climate and soil type. Historically, much of the area consisted of native prairie. Soils within the area determined the vegetative composition of the prairie within the project area, with lighter sandy soils supporting mid-grass and sandsage/warm-season grass systems, while less common heavier soils supported short grass communities. Only a small portion of the project area remains in native prairie due to conversion to agriculture. Significant portions of sand-sage prairie remain, although this habitat type is often interspersed with irrigated cropland.

The proposed CREP geographical site is typical of the arid High Plains Region, with extreme fluctuations in temperature and precipitation, often on a daily basis. Daily maximum temperatures during summer range from 90-95 degrees. Average annual precipitation ranges from 13-17 inches, with 70 to 80% of the annual precipitation occurring during April-September. Precipitation often falls during intense summer thunderstorms, although significant precipitation can occur from winter snowfall. Snow events are often accompanied by strong winds, which results in sporadic snow cover. Evaporation rates, fueled by ever-present winds and low humidity, can exceed precipitation rates by a factor of 3-5 or greater, and require special attention from crop producers in the area. This area is also subject to periodic droughts that vary greatly in severity and longevity.

Soils within the project area are variable. In the extreme northeast, soils are primarily influenced by windborne movement of sand and stream erosion. Much of this area is covered by a significant mantle of loess. Soils are deep, moderately productive depending on precipitation levels, but require agricultural fallow periods to accumulate adequate soil moisture for crop production. Soils are generally well-drained, but occasionally are poorly drained in low lying areas. Irrigation wells are common in parts of the area, and greatly increase the productivity of the area. Generally speaking, the productivity of these soils is higher than the soils found in the southern portion of the project region, which are primarily sedimentary in origin. Throughout the region, wind erosion is significant and soil moisture accumulation is critical to agricultural production. Non-irrigated producers must employ a fallow period between cropping years in order to store adequate moisture to produce wheat or other grain crops.

This portion of eastern Colorado includes most of the ring-necked pheasant range in the state (Exhibit E). Ring-necked pheasant has been identified as a target species by Colorado Division of Wildlife because the

ring-neck pheasant population trend data acts as an indicator of habitat quality within the High Plains Region, is consistently and quantitatively monitored through census trend routes and harvest surveys, and it's habitat is consistent with many other ground-nesting birds. It also provides an economic benefit to landowners through hunting.

This area of the state also encompasses a portion of the range of the greater prairie chicken (Exhibit F). Greater prairie chicken population trend data is collected annually and also provides an index of habitat quality. Greater prairie chickens are important to the state and the local communities, not as much as a hunted species, but rather as a viewable resource. Bird watchers from across the United States and abroad come to northeastern Colorado in the spring to view the annual "booming" ritual of these birds. Several communities within the project area conduct organized tours and utilize the income derived from the nonresidents as a source of income for local chamber of commerce.

Approximately 400 farm operations exist in the program area, with the average being nearly 1,500 acres. Agricultural acres total roughly 8 million across the program area with about 50 percent of those acres dedicated to livestock production. Crop production estimates for 2002 include: winter wheat - 1.5 million acres, corn – 831 thousand acres, grain sorghum – 184 thousand acres, and sunflowers – 109 thousand acres. Statistics were unavailable for proso millet and fallow cultivated acreages, although both are extensive across the program area. Agricultural practices have intensified greatly across eastern Colorado over the last few decades through the increased use of alternative crops and broader variety of crops planted. In 1968 a survey completed by the CDOW indicated that wheat and wheat fallow made up nearly 85% of available cropland acres, with corn, millet and sorghum making up small percentages of the total cropland acres.

Total Cropland in the High Plains CREP Counties

	1987	1992	1997	2002
Kit Carson	**859,732**	**832,154**	**870,106**	**849,670**
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**
Yuma	**709,868**	**696,322**	**642,020**	**703,827**
Total	**4.030,171**	**3,974,059**	**3,564,856**	**4,042,808**
Colorado	**10,030,171**	**10,933,484**	**10,787,080**	**11,530,700**

Wheat and wheat fallow percentages have declined in recent years, due in part to the incorporation of high intensity, high input crop rotations that use wheat, corn, sunflowers and millet in a 2 out of 3 or 3 out of 4 year rotation. While wheat is still the predominant non-irrigated crop grown within the project area, alternative crops may cumulatively cover 50% of the available cropland in any given year. In addition, semi-dwarf varieties of wheat, which are planted exclusively across the program area, result in significantly shorter stubble that is less capable of trapping valuable soil moisture and less valuable to wildlife. In the 1968 CDOW survey, average stubble and wild growing forb height was measured at nearly 20 inches, two months post harvest. Data collected in the mid 1990's revealed that the same cover height had dropped to 10 inches or less, due to the use of semi-dwarf wheat varieties and heavy herbicide use (CDOW, unpublished data).

Water Conservation and Water Quality

Groundwater resources provide the vast majority of water within the project area. The Ogallala Aquifer provides nearly all water used for irrigation or domestic use, and recently, has shown declines in both quantity and quality. The Ogallala aquifer supports roughly 65% of the irrigated acres nationwide. While aquifer water is generally sufficient for irrigation, in some areas Ogallala water does not meet Environmental Protection Agency (EPA) drinking water quality standards, with common pollutant concentrations of sulfate, chloride, selenium, fluoride, nitrate, and dissolved solids (High Plains Water Conservation District, 2004). Surface water storage reservoirs exist within the project area, but water quantity is impacted by climatic events such as drought, and nearly all are appropriated for irrigation use. Since 1999, nearly all reservoirs within the project area and adjacent to the project have been subject to extreme water depletions.

Historical Conservation Efforts

Federal conservation efforts occurring in the project area include the United States Department of Agricultures' (USDA) Conservation Reserve Program (CRP), Continuous Conservation Reserve Program (CCRP), Wildlife Habitat Incentives Program (WHIP), and Environmental Quality Incentive Program (EQIP). CRP acres do exist in the project area, however the relatively large block size (209 acre average), lack of adequate edge and adjacent life requirements have rendered some of these acres less than desirable for certain wildlife species. Some counties within the project area have reached their 25% CRP cap and are not included in this proposal for that reason. These counties may be included at a later date through an amendment should current CRP acres expire, making the CRP capped counties eligible for enrollment in the High Plains CREP. While some benefits have been gained from the continuous CRP program, they do not approach the multiple objectives outlined in this proposal. None of the existing conservation programs offer the opportunity of establishing permanent blocks of cover and at the same time providing incentives to continue to farm to meet the key environmental objectives of the CREP proposal. Reducing agricultural inputs affecting water quality and increasing soil water conservation over an area greater than the CREP acres themselves is also unique to this proposal. In the program area, CCRP, WHIP and EQIP habitat improvement efforts have focused on establishment of woody cover. However, benefits to ring-necked pheasant populations have been limited because recent CDOW research has demonstrated that woody cover is not a limiting factor for pheasants in Colorado.

Land in Conservation Reserve and Wetland Reserve Program in the High Plains CREP counties

	1987	1992	1997	2002
Kit Carson	**35,354**	**107,906**	**141,143**	**145,197**
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**
Yuma	**14,233**	**41,260**	**51,562**	**58,561**
Total	**72,027**	**222,683**	**283,837**	**303,733**
Colorado	**811,790**	**1,325,574**	**1,569,916**	**1,735,353**

State conservation efforts have been ongoing since the late 1970's, when the Division of Wildlife documented a significant decline in pheasant numbers and created the Cooperative Habitat Improvement Program (CHIP). In 1992, CDOW created the Pheasant Habitat Improvement Program (PHIP) and focused on habitat improvements specifically for pheasants. PHIP also created strong partnership with chapters of

Pheasants Forever and Conservation Districts, which increased the delivery and acceptance of the habitat initiative. Since 1992, PHIP has established habitat projects on private land totaling $3.4 million dollars by contracting with local Pheasants Forever Chapters in all counties within the proposed CREP program range. Initially, the PHIP program focused on establishing severe winter cover for pheasants. In recent years, focus has shifted to year round pheasant habitat, to address factors that result in low adult survival and low recruitment rates. With this new focus, PHIP is emphasizing cropland incentives like establishment of small blocks of tall undisturbed grass, leaving tall and unsprayed wheat stubble, and alternative cropping practices. These new practices have been very well received by producers and pheasants have responded positively in localized areas. This CREP proposal is intended to build on this effort and expand the responses over a much larger scale.

Across the project range, wildlife resources are quite diverse, but nearly all are influenced by agricultural activity. While early agriculture tendencies have benefited some species of wildlife, generally speaking, as agriculture practices increase in intensity, benefits to most wildlife decrease. Agriculture practices are responsible for significant fluctuations in some wildlife populations. For example, greater prairie chickens, historically, were not common in Colorado until the prairies were broken and crops were planted. Records indicate that populations across the northeast plains were staggering in the early 1900's, and that Colorado was the final destination for market hunting for these birds (Beck 1956). Following the plow, prairie chickens nested as far west as Barr Lake, near Denver in 1907 (Hersey and Rockwell, 1909). However, the continued conversion of grassland to cropland, combined with other factors, led to rapid population decline, to the point that greater prairie chickens were thought to number less than 600 in 1973 (Graul 1975), and were listed as State endangered. Management practices, primarily managed grazing systems and transplant efforts, have assisted in the recovery and delisting of greater prairie chickens in Colorado. Ring-necked pheasants have followed a similar course. Introduced to Colorado during the early 1900's, populations rapidly increased with agricultural practices, reaching all-time population highs in the 1960's, before plummeting amid high intensity agriculture that emphasized dwarf varieties of wheat and alternative crops (CDOW, unpublished data). Conservation programs and changing agricultural strategies have not increased populations on a wide scale, although in localized areas CRP and modified cropping practices have improved populations somewhat. Within CRP, a Pheasant Conservation Priority Area has been established (Exhibit G) and encompasses the entire proposed CREP project area.

Several of the other grassland birds found in the area are showing various stages of decline throughout their range, including within the project area. Habitat fragmentation and lack of secure nesting and brood rearing habitat is the overlying reason for these population declines. Upland sandpipers, for example were apparently fairly common at the turn of the century, when many settlers brought them to market. Today, they are considered uncommon to fairly common on the northeastern plains of Colorado. The Loggerhead Shrike was thought to have been a fairly common resident of the northeastern plains of Colorado, but today it is listed on the Audubon Society Blue List and is a Colorado Species of Special Concern. This species has shown significant declines throughout its range over the last several decades. Similar trends have been documented for Lark Buntings and Lark Sparrows, as well as several other grassland dependant birds. Positive responses to moderate to tall undisturbed grasslands have been demonstrated in Colorado and throughout the range of many of these species. Additionally, several of these species have responded positively to no-till or minimum till cropping practices, as is being promoted through this proposal.

A partial list of significantly important wildlife species by habitat type that occur in the High Plains counties encompassed by this proposal is included in the table on page 9. 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.

Partial Species List for High Plains CREP counties

(for complete list, see Natural Diversity Information System Website at http://ndis.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
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
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	unk.
Orangethroat Darter	Etheostoma spectabile	Fish	S

Shortgrass

Common Name	Scientific Name	Taxa	Status
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.
Swift Fox	Vulpes velox	Mammal	F/S
Mule Deer	Odecoileus hemionus	Mammal	economic

Mid-grass/Tall-grass

Common Name	Scientific Name	Taxa	Status
Long-billed Curlew	Numenius americanus	Bird	S
Lark Sparrow	Chondestes grammacus	Bird	declining
Loggerhead Shrike	Lanius ludovicianus	Bird	declining
Long-eared Owl	Asio otus	Bird	stable
Greater Prairie Chicken	Tympanuchus cupido	Bird	economic
Mule Deer	Odecoileus hemionus	Mammal	economic
Upland Sandpiper	Bartramia longicauda	Bird	declining
Lark Bunting	Calamospiza melanocorys	Bird	declining

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 and Related Environmental Impacts

The objectives of this proposal include; reducing soil erosion, improving soil quality and soil moisture, enhancing water quality and quantity, creating wildlife habitat, and sustaining the rural farm economy. To achieve these objectives, this proposal requires the development of a farm management system that employs conservation set-asides with active, managed, wheat farming. Approximately 75% of the proposal will target small blocks of permanent habitat near wheat and wheat fallow production systems, while 25% will be focused on resource corner areas, which by their size and shape often result in excessive agricultural inputs, including herbicides and tillage, for little economic return.

The continued intensification of agricultural practices across the project range, in response to economic need, has significant impacts on the High Plains natural resources. To meet our objectives, the following impacts must be mitigated while maintaining agriculture-based communities and rural economies. Agriculture's impacts on natural resources include:

1) Proliferation of chemicals that can have serious and often covert implications, including:
   A. Agricultural herbicides such as atrazine are commonly found in both surface and ground water in the High Plains region of Texas and Nebraska.
   B. Late summer or fall herbicide application to actively growing wheat and wheat stubble reduces wildlife habitat and may impact moisture storing capabilities during subsequent fallow periods.
   C. Resistance of weeds to commonly used herbicides.
   D. Nitrogen fertilizer application that may result in nitrogen accumulation in ground water.

2) Intensification of crop production systems can result in:
   A. Lower frequency of fallow periods that reduce soil moisture levels.
   B. Proliferation of spring crops which require high inputs, are more susceptible to periodic droughts and create disturbance to habitat during critical periods.
   C. Increased use of herbicides that employ long residual activities.
   D. Use of dwarf and semi-dwarf varieties of wheat, reducing moisture storing capabilities, increasing soil erosion, and decreasing wildlife habitat.
   E. Use of fall tillage to control broadleaf weeds, reducing moisture storage capabilities, increasing soil erosion and decreasing wildlife habitat.

3) Loss of undisturbed plant communities beneficial to wildlife, resulting in:
   A. Long-term population declines of economically or biologically important wildlife species.
   B. Declines in wildlife recreation opportunities and the economic value that occurs with hunting, fishing and wildlife viewing.

Significant review of these impacts is necessary to fully comprehend the magnitude of the challenges faced in the agricultural community and those natural resources that are dependent on or influenced by agricultural practices.

1) Proliferation of herbicide and fertilizer application.
   A. Water Quality effects: Atrazine presents a significant concern to both surface and ground water quality. Atrazine applied directly to soil has great longevity, which is an attractive feature for producers in controlling weeds, but also increases risk of atrazine runoff during intense summer thunderstorms that the area normally experiences. In Colorado, atrazine and glyphosate are commonly applied to wheat stubble after harvest, to control broadleaf weeds such as kochia, annual

sunflower, and pigweed. Most frequently, this application is used to prepare for the following crop, often non-irrigated corn, and frequently in high risk areas for atrazine leaching and runoff. Course-textured soils and sands are at high risk for leaching, while fine-textured soils are prone to chemical runoff, depending on storm intensity, and field slope. Neighboring states commonly find atrazine in rivers, domestic wells, and occasionally in larger bodies of water (University of Nebraska, 1996, Texas Commission on Environmental Quality, 2002). Concerns from atrazine's presence in drinking water in states adjacent to Colorado stem from atrazine's classification as a 'possible human carcinogen'. Most atrazine pollution is thought to be the result of improper handling, storage or loading, and disposal, but significant risk exists with heavy applications on sites prone to runoff, and when applied directly to soil and crop residue. The most important factor associated with minimizing atrazine leaching or runoff appears to be minimizing the total use and application rate (University of Nebraska, 1996).

B. Water Quantity Effects: Fall herbicide use and fall mechanical tillage can result in lower soil moisture accumulation in wheat-fallow cropping systems. Soil moisture accumulation, during the fallow period is critical to farming operations on the High Plains. After harvest, water is accumulated in the soil at several periods during the year including fall and winter, however, 75-80% of soil moisture accumulation occurs in April through June. Generally, tall dense residue is much more efficient at catching and storing late winter and early spring precipitation, which within the project area is often accompanied by strong winds that blow snow completely out of short, unprotected stubble. During critical spring accumulation periods, taller, dense stubble residue performs a valuable function in catching and storing moisture and reducing evaporative moisture loss. It is important to insure that the residue remains both anchored in the soil and essentially undisturbed through spring to maximize storage potential. Late summer or fall treatments with Roundup and atrazine, and spring treatments with sulfonylurea herbicides that employ residual activities eliminate broadleaf forbs in wheat stubble. This practice may conserve some soil moisture, but it is at the cost of retaining anchored residual cover which provides for winter and spring moisture storage. Fallow systems are based on accumulating moisture in the soil column for the following year's crop, whereas with spring crop rotations, successful crops are more dependent on precipitation received during the growing cycle. Kansas research data suggests that post-harvest chemical weed control is important for producers using a spring crop rotation, but for producers using a wheat-fallow crop system, post-harvest weed control is not cost-effective, nor does it result in significantly higher soil moisture levels (Schlegel, KSU). A contact herbicide applied early in the spring is preferred under this Delayed Minimum Tillage (DMT) system and mechanical tillage is not recommended until after July to insure moisture is available to fall planted wheat.

C. Herbicide Resistance: Nationwide, producers and chemical companies alike share concerns that heavy use of common chemicals creates 'super weeds', resistant to chemicals that were effective only a few years ago. Numerous examples exist of the development of herbicide resistance weeds, which may indicate that a significant problem is approaching, even with herbicides that were thought to carry minimal risk of 'super weed' development. Glyphosate (Roundup) resistant mares' tale has been observed in several states, while species such as waterhemp and lambsquarter are exhibiting resistance in the cornbelt. Dyer (1998) points to kochia's resistance to sulfonylurea herbicides which limits treatment greatly. Weed scientists suggest that heavy use patterns likely result in the appearance of resistant weeds (Hartzler 2003). Triazine resistant weeds are also well known, particularly lambsquarter and pigweed (Penn State University, 1999). Commonly, the appearance of herbicide-resistant weeds result in the producer using higher and higher rates to control tolerant species, which compounds their accumulation in the environment and their impacts to wildlife habitat. Ultimately, all recommendations to avoid creating herbicide resistant weeds are similar – avoid consistent and prolonged use of herbicides, and use a variety of methods to control weeds when necessary.

D. Fertilizer Use: Fertilizer also presents concerns with regard to water quality. Fertilizer use in Colorado is regulated by the Agricultural Chemicals and Groundwater Protection Act if voluntary measures are not protecting ground water. For that reason, Best Management Practices are available for use by wheat producers (CSU Cooperative Extension, 1994) and are supported by this CREP proposal. Fertilizer use will be reduced to zero on acres planted to permanent cover and may be mitigated by prohibiting the use of post-harvest herbicides, in effect, allowing broadleaf weeds to use excess fertilizer left in the soil.

2) Intensification of crop production systems.

A. In the past, the dominant cropping system was wheat-fallow, in which every 11 month wheat production cycle (September through July) was followed by a 13 month fallow period (August through August). Fallow periods were critical to allow soil moisture to accumulate for the following wheat crop. While many producers still employ a wheat fallow system, significant numbers have adopted wheat-corn (or various other) rotations. Much of this shift has been necessitated by lower commodity prices and the need to produce crops more frequently. A significant downside to these more intense rotations is that they include a shorter fallow period to recharge soil moisture. Often, over a two-year cycle, crops are grown for approximately 15 months, with a 9 month fallow period. Over time, the result is lower soil moisture reserves, particularly when winter and spring precipitation is lower than normal. As drought persists, conservation of soil moisture, and efficiently storing what precipitation occurs, becomes critically important to future productivity.

B. Periodic, and often severe, drought commonly occurs within the project counties. Due to their proclivity to rely on stored soil moisture, and their efficiency at trapping and holding available moisture, wheat fallow systems can persist through moderate and severe drought cycles. Systems employing spring rotation crops, however, due to their reliance on annual precipitation, lower ability to store moisture, and shorter fallow periods, often show impacts of even short-term droughts. Combined with the relatively higher costs of planting and producing spring crops, drought can have a severe impact on a producers' economic well-being.

C. Intensification has resulted in use of herbicides with long-term residual activities, which reduces weed use of soil moisture temporarily, but also reduces the ability to trap and store winter and spring moisture. The promotion of post harvest, annual broadleaf forbs such as wild sunflower that remain anchored in the field, will result in an increase in winter residual cover. This practice will more than offset the moisture used by the plants in the fall and may uptake the remaining fertilizer that the crop did not use.

D. Dwarf and semi-dwarf varieties of wheat are also commonplace in the project area. Producers began using these varieties of wheat to reduce problems with tall wheat lodging and falling to the ground, however, the resultant short wheat stubble is vastly inferior at catching and storing available moisture.

E. In southern parts of the project area, fall tillage of crop stubble is a typical means of controlling weeds, yet data suggests that fall tillage is the most damaging weed control practice when considering conservation and collection of soil moisture. Fall tillage of crop stubble can be input-friendly, but destroys valuable stubble that traps moisture, in addition to opening the soil surface to several months of wind evaporation.

3) Loss of undisturbed plant communities beneficial to wildlife.

A. Nearly all wildlife species across the project site are dependent on or influenced by agriculture. While in some areas, native vegetation does exist, for the most part, the natural condition has been

permanently modified by dry land agriculture, and this change has been accompanied by a change in wildlife species composition. Agriculture, due to its influence on habitat abundance and quality, has strong effects on wildlife abundance. Wildlife species within the core project area are affected by weather as well, often in combination with ag-related changes in habitat. Ring-necked pheasants provide the best long-term data set across the project area, with population surveys available from the 1950's to present. Annually, the CDOW monitors populations using male pheasant 'crowing counts'. Many of the routes have been unchanged since the early 1950's, and collectively, provide an excellent trend of pheasant populations in the project area. Division survey data from 1959 indicated that crowing counts averaged, across all routes in northeast Colorado, 64.5 pheasant crows per station. Over the next 30 years, average calls per station, on the same routes, declined over 80% to all-time lows of 10-12 per station in the late 1980's. Similar pheasant declines occurred throughout the state, and coincided closely with semi-dwarf wheat and intensive agriculture. It is important to note that the decline period includes the mid and late 1980's, which spawned several general CRP signups. Unfortunately, 1980-vintage CRP had virtually no positive effect on pheasant populations in Colorado due to the prevalence of cool-season introduced grasses like smooth brome (Remington, pers. comm.). Size and juxtaposition of CRP enrollments also directly impacts their value to wildlife. For example, statistics indicate that the average size of a CRP enrollment in Colorado is 209 acres, while most of the target species actually respond to smaller field size, a diversity of habitats within their home range, and increased edge effect. This trait is also seen in agricultural practices in general, as field size has increased, diversity of wildlife habitat and edge effect has decreased. Over the last 45 years, the pheasant population decline is directly related to the use of intense farming practices, including semi-dwarf wheat varieties, clean farming, herbicide use, and rotation cropping.

B. As economically important species have declined, so has revenue to local communities from hunting and other wildlife related activities. In 1996, CDOW estimated that small game hunting alone directly contributed $7.5 million to the 5 counties within the project range, while the total wildlife expenditures exceeded $14.5 million for those counties. 2002 estimates show a marked decline in revenue with small game hunting contributed $3.5 million, while total wildlife expenditures totaled $11.2 million (BBC Research, CDOW). Much of the decline within these counties is due to decreased wildlife habitat in agricultural fields and persistent drought conditions which have decreased pheasant populations.

Section 4: Project Objectives

1) Reduce soil erosion by combining the creation of permanent grass cover and adopting stubble retaining crop strategies on adjacent acres.

2) Eliminate herbicide use on all CREP acres and reduce use of herbicides that employ long & short term residual activities on actively growing green wheat and wheat stubble. Significant reductions in use of these chemicals on 99,000 acres, including on up to 1,000 corner resource areas, would result in an estimated 2% decrease in current use within the project area, with a 75-100% decrease on acres enrolled in the CREP, EQIP and state incentive packages. See Exhibit M for specific annual fertilizer and chemical reductions on CREP and adjacent acres.

3) Increase soil moisture conservation and storage through retention of crop residues that efficiently trap and hold moisture, reduce runoff and evaporation losses.

4) Create 99,000 acres of high quality and diverse wildlife habitat, by enrolling 30,000 acres into CREP habitat resource blocks, and 69,000 acres of actively managed cropland habitat, with a minimum increase in 'edge effect' of 50% on enrolled properties. The direct wildlife impact on the 99,000 acres under this proposal will likely increase ground nesting birds by 100%, with a corresponding 25% increase on adjacent farmland.

5) Increase recreational opportunity within the project range by enrolling 99,000 acres of habitat into the Walk-In Access program.

6) Provide incentive based voluntary program for producers to maintain a viable farming operation while accomplishing conservation objectives.

Section 5: Project Description

The Colorado High Plains CREP will develop and enhance partnerships between federal agencies, state agencies, agricultural groups, and local conservation groups, resulting in locally participative sound natural resource management. Partners will combine technical and financial resources to improve soil, soil moisture, water quality, and wildlife habitat across the project area by enrolling landowners in a program utilizing the following methods.

The principle of the program is that a landowner enrolls in the High Plains CREP program, which is actually a combination of blocks of land enrolled in CREP ("Habitat Resource Blocks") and adjacent blocks of land managed using Delayed Minimum Tillage (DMT). All these blocks of land are managed as a whole, to provide permanent cropland set-aside and wildlife habitat (under CREP), and surrounding rotational cropland that is managed in a way beneficial to water conservation and quality, soil management and to pheasants and other ground nesting birds. All the land would also be enrolled in the state Walk-In Hunting Access program, thus generating landowner income and providing further public benefit. In this way, a landowner maintains most of his land in a productive farming system, but manages more of it in an environmentally and wildlife beneficial way that he might otherwise not be able to do without the federal, state and local partnerships that make it economically viable.

The following USDA conservation practices will be used in the Colorado High Plains CREP:
CP-4D – Wildlife Habitat (pheasant), CP-12 – Wildlife food plot, and CP-24 – Crosswind Traps.

Initially, project targets will be set at 20,000 acres of CP-4D habitat resource blocks, 7,000 acres of CP-4D in corner resource areas, and 3,000 acres of alternate resource strips under modified crosswind traps. CP-12 food plots will be offered as an option to interested producers under normal CP-12 CRP and CDOW Pheasant Habitat guidelines. As an integral part of this proposal, the DMT management provision for conservation tillage (Exhibit K) will be directed towards all wheat fallow acres adjacent to a Habitat Resource Block or associated with Crosswind Traps enrolled in the CREP.

<u>Project Design: Habitat Resource Blocks</u>

As the prominent feature of this proposal, approximately 25% of a given dry cropland field will be enrolled in a *habitat resource block* under the USDA's CREP program in a CP-4D (pheasant) or CP-10(pheasant). By enrolling in the CREP, the producer will agree to develop a managed wheat/fallow cropping system as per CREP guidelines and CDOW habitat specifications on the remaining field acres. In a normal quarter-section, this will result in approximately 40 acres (+ or – 5 acres) of grass CREP cover, and approximately 120 acres of managed wheat/fallow production. On all CREP and wheat/fallow acres, the producer will agree to comply with chemical application requirements outlined in Exhibit H, leave tall residual cover on non-CREP acres as required under DMT Residue Management (pheasants) provision, and permit small game hunting access. Exhibit I provides a schematic describing the Division's proposal for field delineation and management.

Example of proposed CREP guidelines and CDOW habitat requirements: Producer will farm approximately 40 acre blocks of wheat and wheat fallow, in rotation around the approximate 40 acre (+ or – 5 acres) CREP *habitat resource block*. Producer will eliminate any fall herbicide use on all acres, using only contact herbicides in the spring on cropland acres, and harvest wheat in a manner that will leave a minimum of 15 inches of stubble, planting taller growing varieties of wheat if necessary. As a condition of CREP enrollment, all acres under the CREP portion (approximate 40 acres of permanent cover) and the approximate 120 acres of managed wheat program must be enrolled in the Division of Wildlife's Small

Game Walk-In Access Program, with an additional state incentive payment to the landowner. Producers will be provided technical information detailing specific management strategies, corresponding incentive payments, and necessary habitat contracts and access agreements for the program. Also described will be allowable crop substitutions and in some cases, suitable chemical treatments, that will enhance the objectives of this proposal. Exhibit H provides more information on crop substitutions and approved chemical treatments.

Alternative Resource Strip Option

As an alternative to the *habitat resource block* practice, a producer may opt to establish modified crosswind traps (CP-24). CDOW requests a waiver on the CP24 practice to permit roughly 25% of a given field (up to 39 acres per 160 acre parcel) and an increase in the width of the individual trap strips from 25 feet to 50 feet. This modification will better serve to meet the goals and objectives of the CREP, if appropriate cover is planted on the CREP acres. For the High Plains CREP only, the Division of Wildlife is requesting that the USDA-FSA permit a waiver for CP24 – Crosswind Trap Strips on ten percent (3,000acres) of the total CREP acres. This waiver, if approved will enhance environmental objectives of reducing soil erosion and moisture capture, avoid establishing 'nest traps' for pheasants and other upland and non-game passerine birds and accommodate those participants that cannot meet the *habitat resource block* criteria due to field shape, size, or field specific configuration.

Corner Habitat Block Option

Corner resource areas will be enrolled under the CREP Program, in CP-4D permanent cover. Due to their small size (normally 7-9 acres in size) and shape (triangular), efficient and input-friendly wheat/fallow farming is nearly impossible. To meet objectives of this proposal, the best option for resource corners is creation of permanent CP-4D cover, which will be vastly superior to crop production in reducing herbicide usage, soil erosion, in addition to providing excellent wildlife habitat. Producers will not be limited in the number of *corner resource areas* enrolled per field, however, individual corner size may be capped at 10 acres. The corner resource areas do not have an adjacent cropping component requirement. Dryland corners with the associated irrigated pivot acres enrolled in the Republican River CREP are not eligible for enrollment in the High Plains CREP.

Exhibit H describes the guidelines for the management of the wheat and wheat fallow rotational blocks.

Exhibit I provides a schematic describing the Division's proposal for field delineation and management.

For lands enrolled in all practices of this CREP, the Division of Wildlife requests that mowing and managed haying and grazing be prohibited, in lieu of more favorable mid-contract management regimes, such as prescribed burning and light disturbance tillage. Emergency haying and grazing will be permitted under provisions established under CRP rules. To encourage CREP enrollments in appropriate areas, the proposed enrollments must not lie within a landscape that is dominated by native short grass prairie, defined as the adjacent lands composed of 50% or greater native short grass prairie

Section 6: Cost Analysis

Exhibit J provides a more detailed look at costs associated with this CREP proposal, however, a brief summary follows:

A) Total Estimated Costs – $25,289,250 over 15 years, 79% federal and 21% non-federal. These costs reflect a direct non-federal cash payment on approximately 16%. Exhibit J lists the practices and applicable incentives from federal and non-federal sources.

B) Federal land use rental payments on CP4D and CP10 would be identical to dryland rental payment under the Continuous CRP (dry land rental rate for the county). On ten percent of the CREP acres (3,000 acres), we are proposing some modifications to the Practice Incentive Payment (PIP) structures for CP24 only. Specifically, we are requesting that for this CREP only, landowners be eligible for an additional 40% PIP payment for practice installation.

C) The Division of Wildlife's Pheasant Habitat Improvement Program (PHIP) currently provides eastern Colorado Pheasants Forever chapters with $350,000 annually for habitat projects, including food plots, deferment of chemical application to wheat, and corner resource incentives. The PHIP funding, upon approval of this CREP Agreement, will be incorporated into this CREP proposal, which will allow more comprehensive distribution of projects. Likewise, the Division's Walk-In Access Program will be an important partner, and currently budgets $300,000 annually for hunting access payments to landowners and administrative costs. A large percentage of the Walk-In Access Program funds will be targeted towards CREP acres upon the High Plains CREP approval.

D) The Colorado Division of Wildlife has assigned a full-time CREP coordinator to administer the state's interests in CREP proposals and coordinate reporting requirements and other CREP related administrative needs. It is expected that one third to one half of this individual's time will be dedicated to the High Plains CREP proposal and implementation. Additionally, the Colorado Division of Wildlife has one staff person that has Farm Bill Coordination as part of his job duties. It is anticipated that this person will dedicate five to ten percent of his/her time to CREP related activities. The Colorado Division of Wildlife's Small Game Manager will provide direction and resources to insure PHIP and Walk-In access funding is appropriately applied to this CREP. We anticipate that approximately 50% of this person's time will be dedicated to PHIP and Walk-In Access directly related to the High Plains CREP. CDOW field staff will be engaged in the implementation, monitoring, and promotion of the High Plains CREP. In total, CDOW in-kind services will approximate $75,000 annually.

E) Pheasants Forever members have dedicated countless hours to the Division of Wildlife's PHIP and Walk-In access programs over the past ten years. Additionally, local conservation districts have provided promotional and implementation assistance for both of these programs. These partners have already obligated to assist with the promotion, implementation, outreach, and monitoring for the High Plains CREP. Six county PF Chapters and local conservation districts will dedicate between $15,000 and $20,000 of In-Kind voluntary services to the High Plains CREP.

F) The Colorado Division of Wildlife has provided funding for The Rocky Mountain Bird Observatory to conduct specific passerine bird surveys in the habitat within this geographic area. These surveys will provide a baseline in the first several years and will hopefully detect changes as the CREP acres are enrolled and the permanent habitat is established. Funding for the five counties within the High

Plains CREP is $3,600 per county per year, however this In-Kind match will be split between the Republican River and the High Plains CREP. The total annual funding obligated to the High Plains CREP will be approximately $9,000 per year.

G) Additional partners are expected, as this CREP proposal will have far-reaching positive impacts for such potential partners. These partners can provide funds, in kind services, and technical information to landowners, and administrative assistance for federal and state agencies.

Section 7: Monitoring

How success of Program will be measured

The success of the High Plains CREP will be partially measured by the level of producer participation and the progress toward the overall objectives of the proposal. Specific measurements regarding progress toward program objectives are detailed in this section.

Description of Data to be Collected and Methods

Water Quality: The Northern High Plains Aquifer Studies of 2002-2004 being conducted by USGS will serve as baseline for source-water 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: Population data for selected wildlife species, primarily ring-necked pheasants and greater prairie chickens, will be collected annually by the Division of Wildlife within the area using survey techniques currently in use. The surveys for ring-necked pheasants include spring crowing call counts, fall brood counts and Small Game Harvest Surveys. Greater prairie chicken populations will be monitored using a nationally accepted protocol that randomly surveys greater prairie chicken leks or breeding grounds and provides long-term trend indices for the species. This data has been collected for decades in Colorado which will be used as a baseline.

The Rocky Mountain Bird Observatory (RMBO), a nonprofit organization dedicated to the conservation of birds and bird habitat in the Rocky Mountain Region has preliminarily agreed to provide expertise and resources to monitor passerine bird responses to the habitat improvements contained within the High Plains proposal. The Colorado Division of Wildlife has provided funding for this organization to conduct specific passerine bird surveys in the habitat within this geographic area. These surveys will provide a baseline in the first several years and will hopefully detect changes as the CREP acres are enrolled and the permanent habitat is established.

Landowner Surveys: The Colorado Division of Wildlife periodically surveys landowners to assess their responses to new programs. CDOW may survey landowners to assess their responses regarding CREP and the use of Pheasant Habitat Improvement Program and Walk-In Access Program funding to match CREP.

Hunter Surveys: The Colorado Division of Wildlife periodically surveys small game hunters to assess their satisfaction regarding certain hunting related activities sponsored by CDOW. CDOW may conduct a survey assessing hunters and their responses to this program. CDOW is also interested in promoting new hunters and may attempt to assess the number of new hunters that have been recruited through the implementation of this program.

Annual reports will be prepared and submitted to the Farm Services Agency by the first of April each year by the Division of Wildlife CREP administrator.

Continuing evaluation by the partners will be necessary to ensure that program objectives are being met. If evaluation shows that specific objectives are not being met, practices within the program will be modified with the assistance of FSA, to meet those specific Program objectives.

Section 8: Public Outreach and Support

Phase I: Information Gathering and Assessment of Public Support

Support for this project is significant and widespread, and includes state, county and local agencies, Conservation Districts, producer and commodity groups, conservation organizations and environmental groups. Further, this proposal was developed with the assistance of an interdisciplinary team consisting of representatives from many of these groups. It is expected that these supporting partners will provide assistance with public outreach and program support. Conservation groups and agricultural organizations were consulted regarding the conservation values of the proposal as well as the economic viability of various aspects of the program. These groups and organizations provided invaluable insight into the development of this proposal and most have indicated their support through specific letters (Exhibit N) or verbal approval.

Phase II: CREP Rollout

In agreement with FSA and USDA, a multi-media outreach campaign will be initiated on the approval of this CREP proposal, including organizational newsletters, brochures, displays, magazine articles, agency news spots on television, web based information sources, and landowner seminars. The High Plans CREP will be announced and promoted through seven county newspapers and local radio stations. Pheasants Forever Chapters in each CREP county will provide outreach through local contacts and sponsoring local meetings. Additionally, High Plains CREP information will be posted on the Pheasants Forever state website. State agency (CDOW) representatives and Pheasants Forever members will be available to assist with training and provide information at local offices. CDOW biologists and other CDOW staff will be available to promote the High Plains CREP at local fairs, FFA meetings, Conservation District meetings, and other venues where landowners may be contacted.

Phase III: Ongoing Support

The High Plains CREP will be discussed monthly at CDOW regional meetings. Ongoing newspaper articles and radio press releases will be conducted by CDOW staff and Pheasants Forever members in the local communities. CDOW phone numbers and e-mail addresses will be distributed at local USDA offices so producers that are interested will have the ability to contact CDOW. A High Plains CREP summary will be provided annually in the Walk-In Atlas booklet that is distributed to hunting license agents throughout the state. Other promotional activities will be considered and implemented as deemed necessary to meet the High Plains CREP objectives.

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
Project Area Map

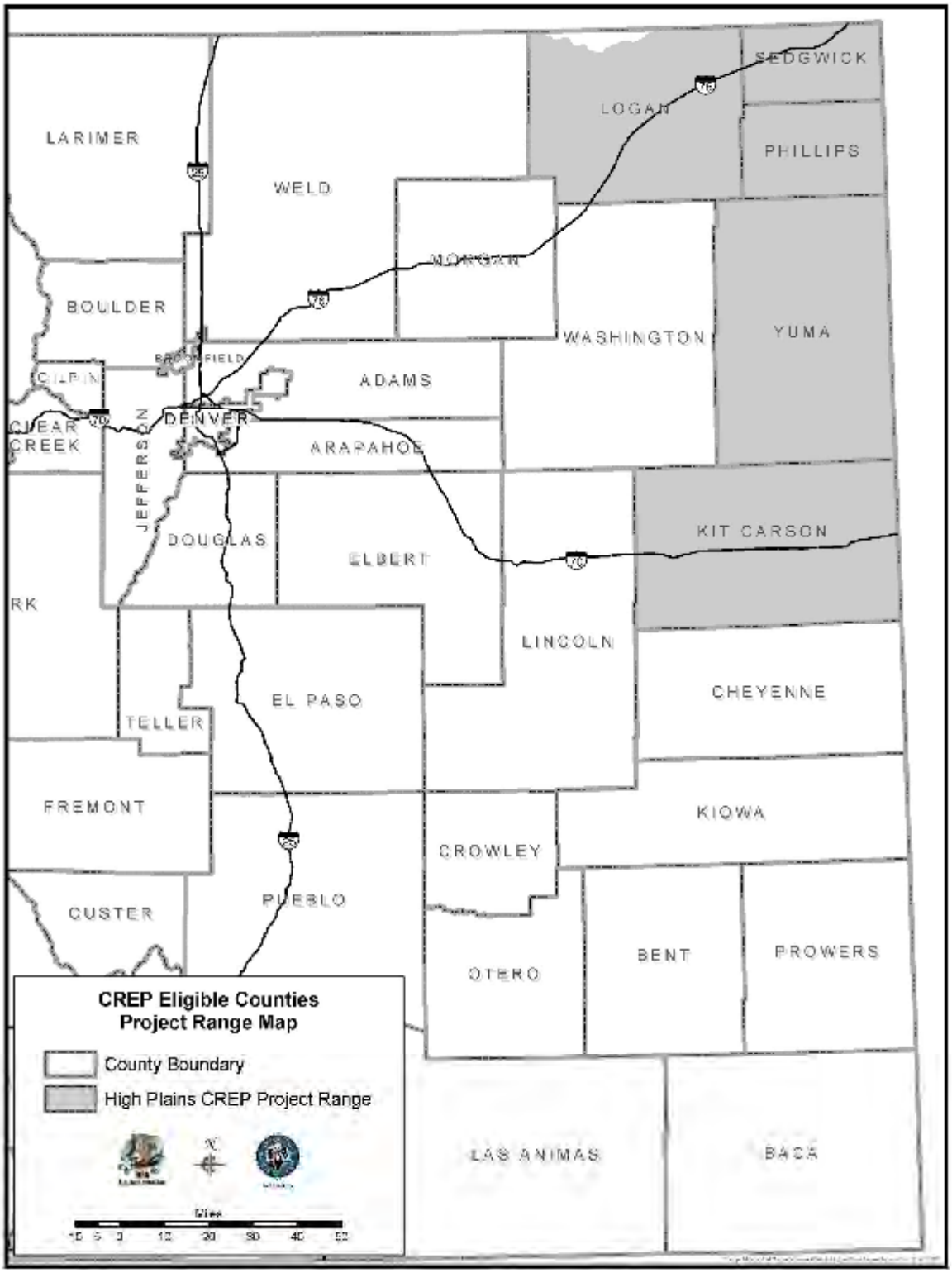


Exhibit B
Ogallala Aquifer

Exhibit C
Streams and Drainages

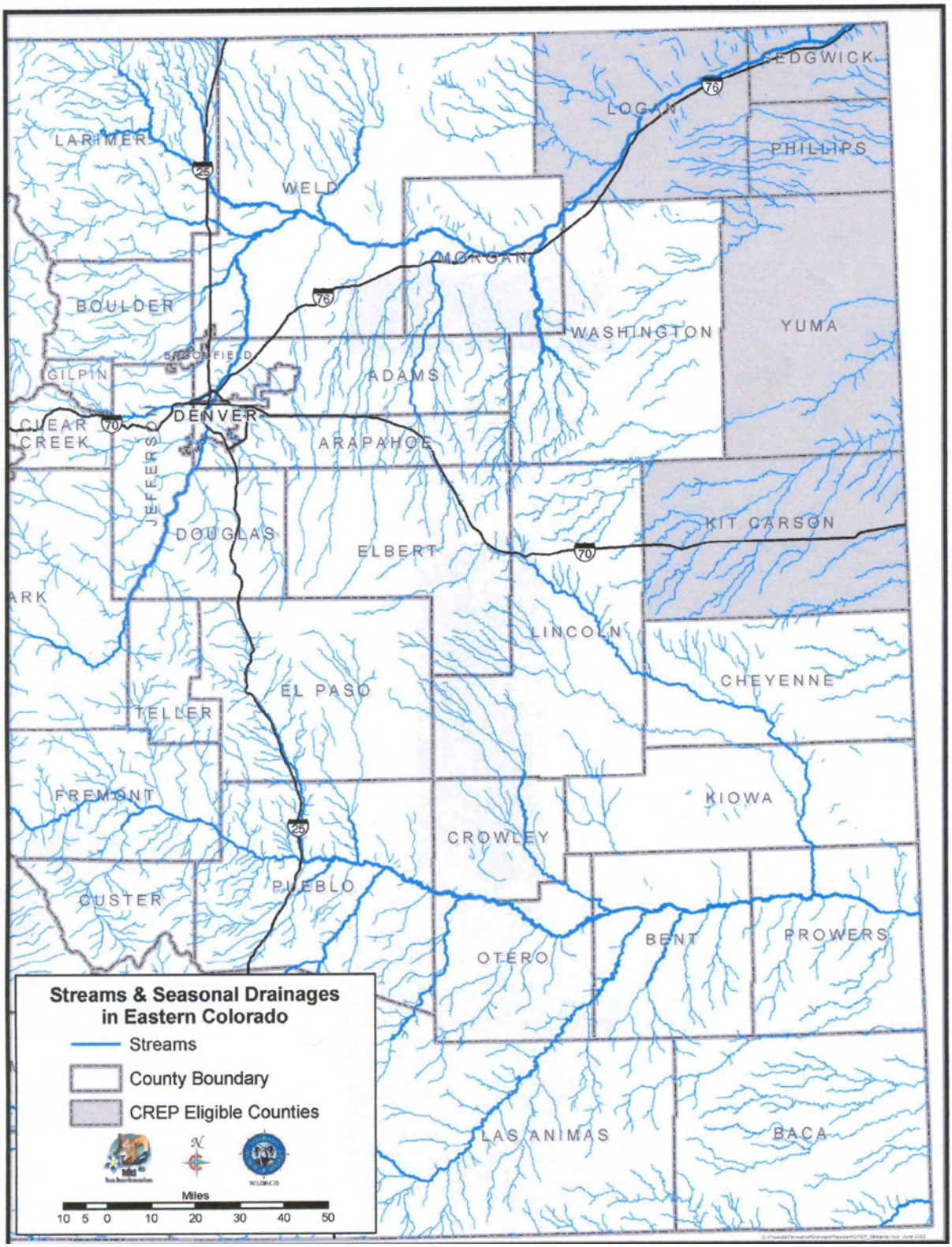


Exhibit D
Colorado Hydrological Units

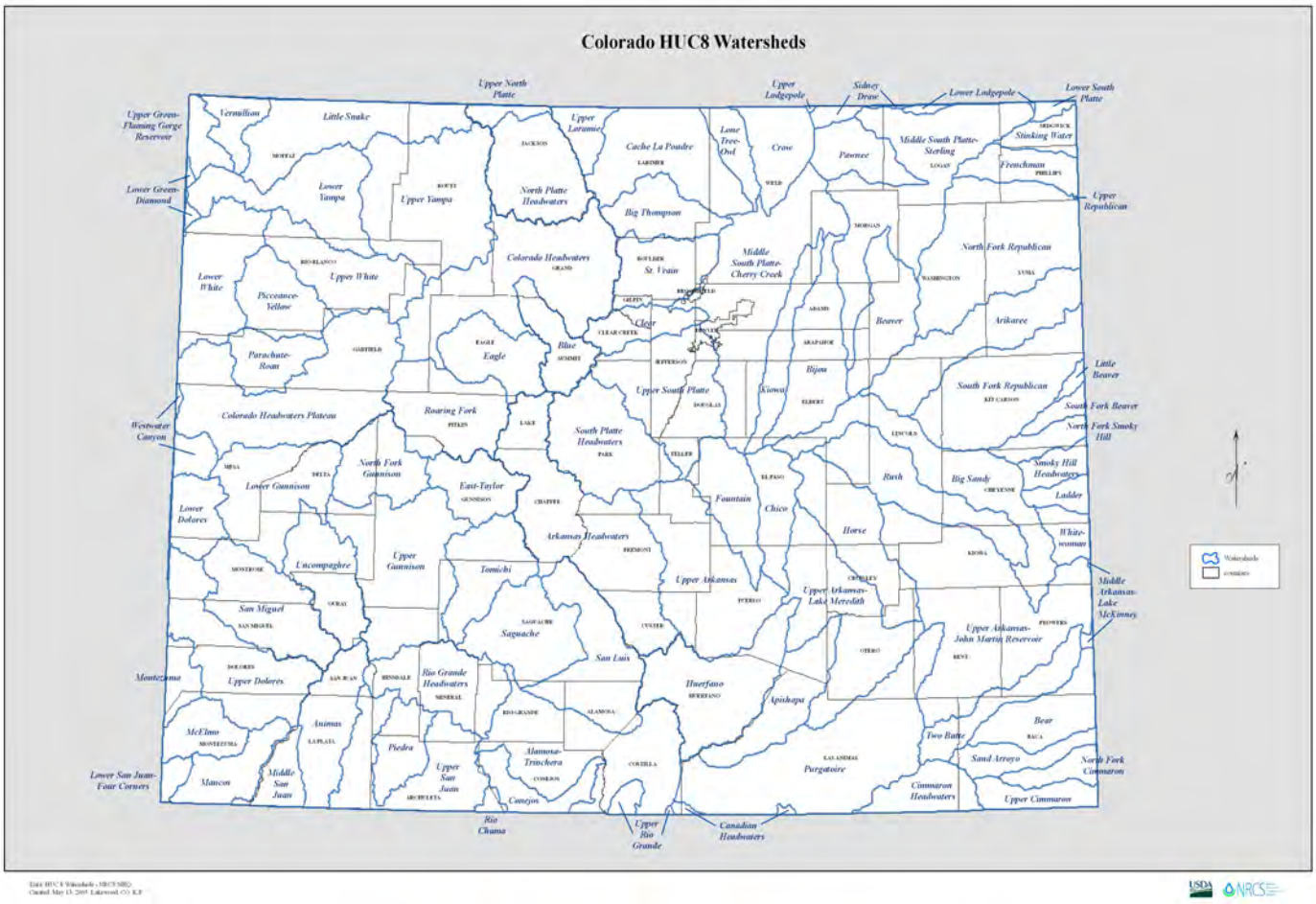


Exhibit E
Ring-necked Pheasant Range

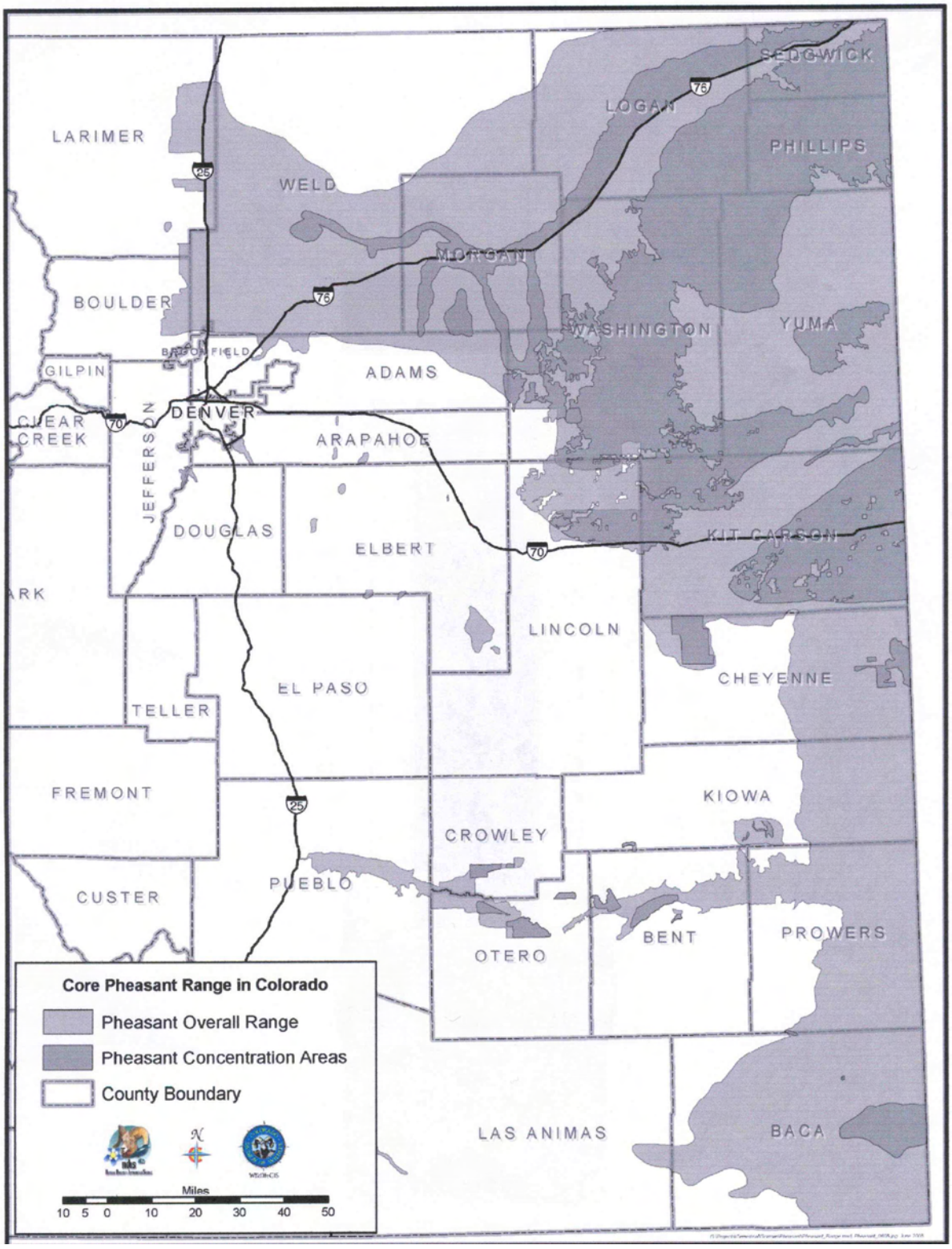


Exhibit F
Greater Prairie Chicken Range

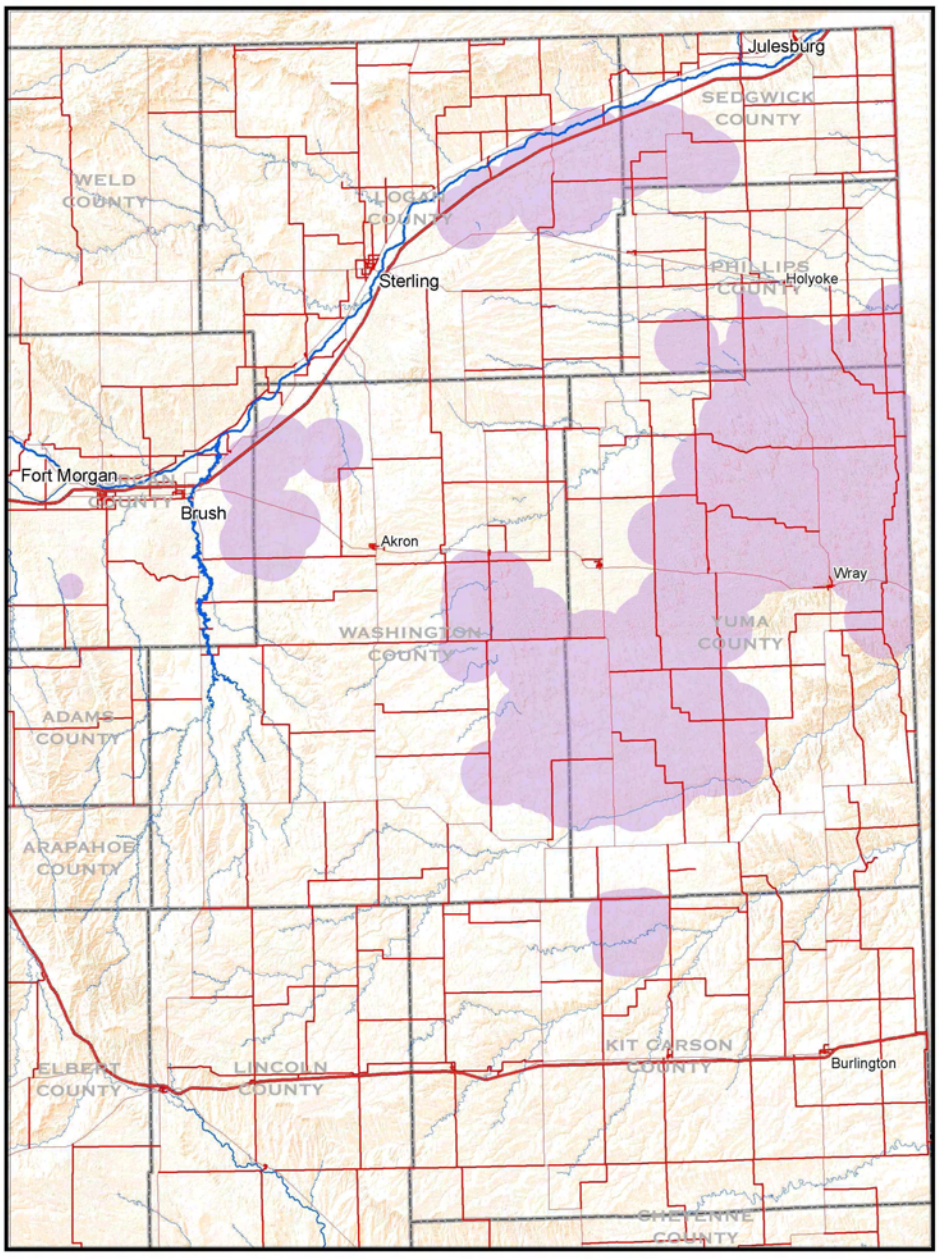


Exhibit G
Colorado Conservation Priority Areas

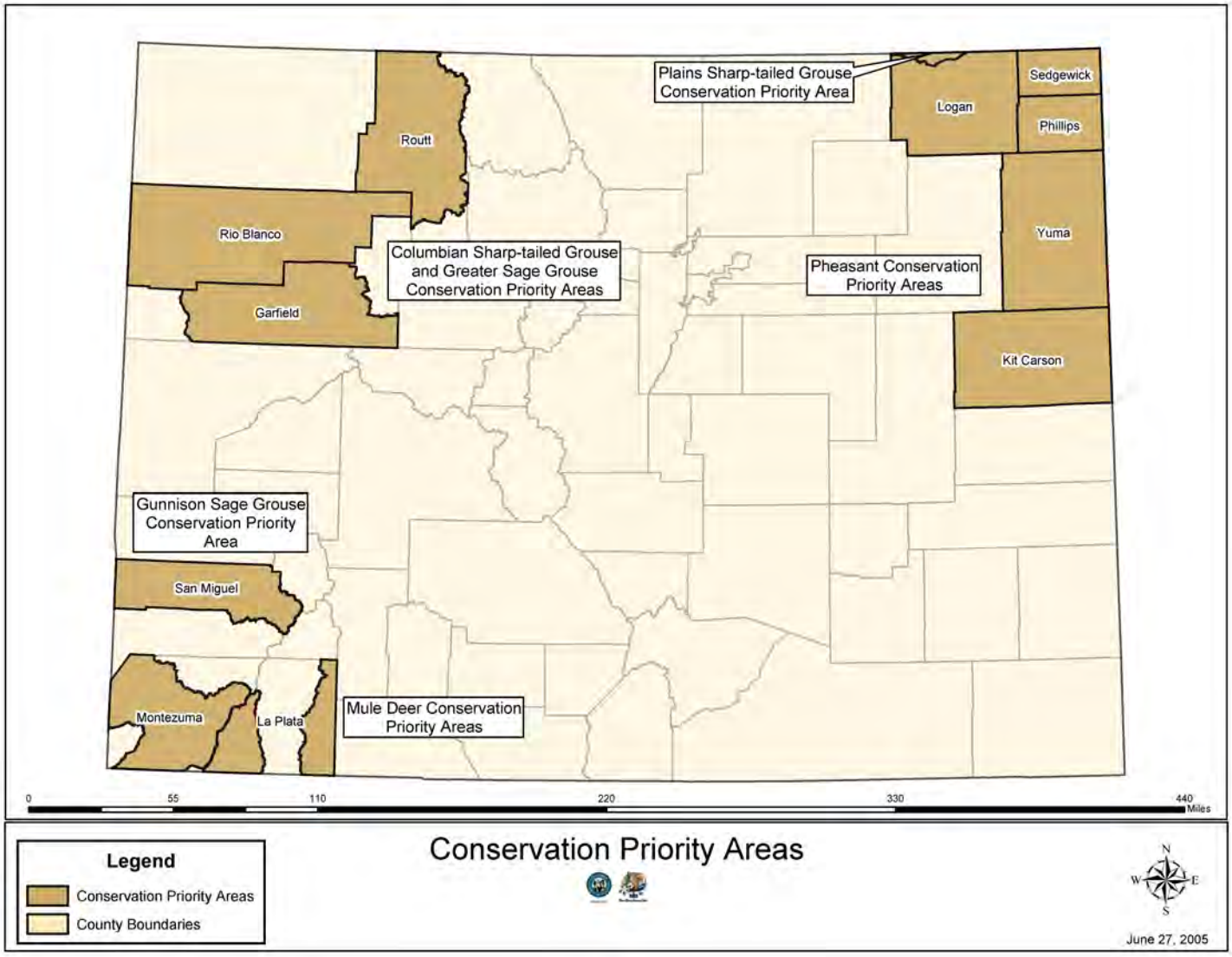


Exhibit H

Wheat and Wheat Fallow Guidelines – High Plains CREP.

Producers enrolling in the High Plains CREP agree to manage the remaining cropland acres of the field in a managed wheat/fallow system, as described in the six following sub-sections:

1. Chemical Deferment.

A. Producer agrees to defer use of all post harvest chemicals on wheat stubble, including application of Glyphosate and herbicides with residual activity.
B. Producer agrees to use only non-residual herbicides in the spring. The application of spring herbicides to green wheat that employs residual activity is prohibited. Specifically, sulfonylurea herbicides are prohibited.
C. Fertilizer application is not restricted except that fertilizers should be applied according to manufacturer's recommendations.

2. Permitted chemical management.

A. Producers will be permitted to control spring mustard problems by applying chemicals that have no residual activity.
B. Producers that employ Clearfield wheat to manage jointed goatgrass can apply Beyond herbicide as required by Clearfield guidelines.
C. Producers that delay tillage of crop stubble until July 1 may apply Glyphosate and/or 2-4D to conserve soil moisture as necessary. No chemicals with residual activity will be permitted under this provision, which is also known as 'Delayed Minimum Tillage'.

3. Stubble Height.

A. Producer agrees to leave a minimum of 15 inches of standing stubble after harvest, regardless of the method of harvest used by the producer.
B. Producers should select varieties of wheat that will attain the necessary height to leave a minimum of 15 inches of stubble after harvest.
C. Under extreme drought circumstances, the Division of Wildlife may make allowances to producers to leave as much stubble as possible, when 15 inches is not possible. Division of Wildlife Incentives will be available in these circumstances as long as producer has shown good faith effort to leave as much stubble as possible.

4. Field Size and Alignment.

A. Preferred option for field size and alignment is 3 fields of 40 acres each adjacent to the 40 acre Habitat Resource Block, however, a producer may choose to create a base field size of two (2) 60 acre blocks of wheat & fallow, per year, with each block adjacent to the Habitat Resource Block. Alternate Habitat Resource Blocks must follow alignment guidelines for the specific USDA practice.
B. On multiple adjacent enrollments by a single landowner, Habitat Resource Blocks must be at least ½ mile apart. No distance requirements will be required for alternative Habitat Blocks.
C. On adjacent enrollments by different landowners, Habitat Resource Blocks must be at least ¼ mile apart. No distance requirements will be requested for alternative Habitat Blocks.

5. Crop rotations and substitutions.

A. Wheat/Fallow shall be the primary crop selection and rotation pattern. **Crop substitutions other than wheat will be allowed no more than once every 5 years.**

B. Crop substitutions will be allowed only with CDOW agreement, when producer can demonstrate that a quantifiable need exists to rotate crops to reduce rye or jointed goatgrass concerns. All substitutions will be subject to chemical deferment requirements. Post harvest stubble height requirements will be waived for proso, red hershey, and forage sorghum (see #5-C below).

C. Permitted crop substitutions will include proso millet, red hershey, dryland corn, and grain sorghum. Forage sorghum will be allowed as a substitute crop, however, producers using forage sorghum will not be required to leave the minimum stubble height. Instead, producers will be required to leave 3 acres of forage sorghum standing, immediately adjacent to the Habitat Resource Block. Sunflowers (seed or oil,) and other crops not mentioned will not be accepted as substitution crops.

D. Clearfield wheat will be allowed as a substitution crop, only to reduce jointed goatgrass concerns, as suggested by technical guidelines.

6. Tillage.

A. All stubble within this proposal must remain untilled from harvest date through a minimum date of July 1 of the following year to participate in the EQIP Residue Management Practice.

B. Fall post-harvest tillage will not be allowed within this program.

C. If a producer chooses to mechanically till in the spring, he will not be eligible for the EQIP Residue Management (pheasants) incentive payment. Under this scenario, the first mechanical tillage must be conducted prior to May 1 to encourage hen pheasants to establish nests in green wheat or adjacent undisturbed grass cover. If stubble cannot be worked prior to May 1, tillage should be deferred until July 1.

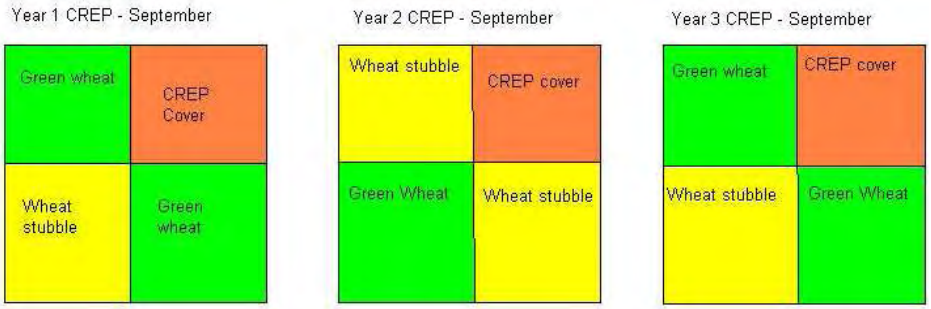
D. Specific mechanical tillage operations, within the above sideboards, are at the complete discretion of the producer.

All other cropping practices will be left to the discretion of the producer, but should be in accordance with the intent of the objectives of the CREP and managed wheat system. The CDOW will not hold the producer at fault for circumstances beyond control, including hail, lightning, wild fire or drought.

Exhibit I

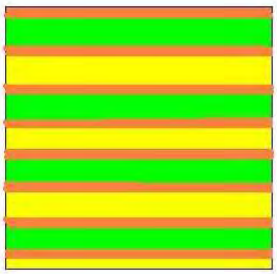
CREP/wheat fallow arrangements and options.

Habitat Resource Blocks – Preferred design and rotation.



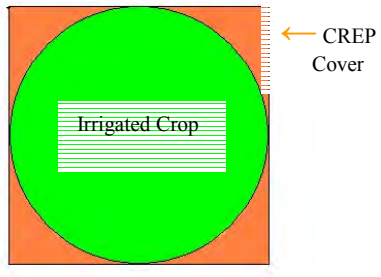
Habitat Resource Blocks – Secondary design and rotation.

Habitat Resource Blocks – Alternate Practices. (diagram not to scale)



CP-24- Alternate Cross-Wind Trap Strips fifty feet in width not to exceed twenty five percent of the field. Crosswind Trap Strips must be alternated with DMT Wheat fallow strips. No less than 10 nor more than 15 Crosswind Trap Strips are permitted per 160 acre field.

Habitat Resource Corners – CREP



No DMT cropping requirements are associated with the Habitat Resource Corners.

Exhibit J

USDA- Farm Service Agency and non-federal Partners Cash Contribution Overview

Use	Practice	Federal Cost	Partner Cost, Cash
Habitat Resource Block	CP-4D, pheasant	▪ 50% establishment cost ▪ Dryland rental rate ▪ $5.00/acre maintenance	▪ $700/parcel (signing) ▪ $5.00/acre PHIP annual Incentive ▪ $1.50/acre Walk-In Access ▪ $0.50/acre Walk-In Contractor
Corner Resource Area	CP-4D, pheasant	▪ 50% establishment cost ▪ Dryland Rental Rate ▪ $5.00/acre maintenance	▪ $100/corner or $500 for all 4 corners (signing) ▪ $10.00/acre PHIP annual Incentive ▪ $5.00/acre for Walk-In Access ▪ $0.50/acre Walk-In Contractor
Crosswind Trap Strips	CP-24	▪ 50% establishment cost ▪ 40% PIP ▪ $5.00/acre maintenance	▪ $5.00/acre PHIP annual incentive ▪ $1.50/acre for Walk-In Access ▪ $0.50/acre Walk-In Contractor

Colorado Division of Wildlife Cash Contribution

Small Game Walk-In Access Program Costs at target acreage.

Annual Incentive	Unit	Walk-In Access	Total Walk-In Landowner (Year 1)	Total Walk-In Landowner (Year 2)	Total Walk-In Landowner (Year 3)*	Total Walk-In Landowner (Year 4-15)
Habitat Resource Block $1.50/acre	20,000 acres	$1.50/acre	$9,750 (6,500 acres)	$19,500 (13,000 acres)	$30,000 (20,000 acres)	$30,000 (20,000 acres)
Alternate HBR $1.50/acre	3,000 acres	$1.50/acre	$1,500 (1,000 acres)	$3,000 (2,000 acres)	$4,500 (3,000 acres)	$4,500 (3,000 acres)
Corner Resource Area $5.00/acre	7,000 acres	$5.00/acre	$12,500 (2,500 acres)	$25,000 (5,000 acres)	$35,000 (7,000 acres)	$35,000 (7,000 acres)
Contractor Fee (CREP)		$0.50/acre	**$5,000**	**$10,000**	**$15,000**	**$15,000**
Walk-In CREP Sub-Totals			**$28,750**	**$57,500**	**$84,500**	**$84,500/yr 12 years**
Total CREP Walk-In Cost-Share						

* Pending re-authorization of the Farm Bill after December 31, 2007.

Colorado Division of Wildlife Cash Contribution

Pheasant Habitat Improvement Program (PHIP) Estimated Cost-Share on CREP acres at target acreages of 10,000 per year.

One Time Incentive	Unit	PHIP Habitat Bonus (at signing)	Total Habitat Bonus (Year 1)	Total Habitat Bonus (Year 2)	Total Habitat Bonus (Year 3)*	
Habitat Resource Block	20,000 acres	$700/parcel	$112,000 (160 parcels)	$112,000 (160 parcels)	$122,500 (175 parcels)	1 parcel = 40 ac
Corner Resource Area	7,000 acres	$100/corner or $500 if all 4 corners enrolled	$45,000 (90 parcels)	$45,000 (90 parcels)	$35,000 (70 parcels)	1 parcel = 28 ac on average
Sub-Total	27,000		**$157,000**	**$157,000**	**$157,500**	
Bonus Program Total	27,000 acres					

Annual Incentive	Unit	PHIP Habitat Incentive	Total Habitat Incentive (Year 1)	Total Habitat Incentive (Year 2)	Total Habitat Incentive (Year 3)*	Total Habita Incentive (Year 4-15)
Habitat Resource Block	20,000 acres	$5.00/acre	0	$32,500 (6,500 acres)	$65,000 (13,000 acres)	$100,000 (20,000 acres
Alternate HBR	3,000 acres	$5.00/acre	$0	$5,000 (1,000 acres)	$10,000 (2,000 acres)	$15,000 (3,000 acres
Corner Resource Area	7,000 acres	$10.00/acre	$0	$25,000 (2,500)	$50,000 (5,000 acres)	$70,000 (7,000 acres
Sub-Total	30,000		**$0**	**$62,500**	**$125,000**	**$185,000**
Cost – Bonus and Incentive			**$157,000**	**$219,500**	**$282,000**	**$185,000**
Total PHIP Cost , 15 years	30,000		**$157,000**	**$219,500**	**$282,000**	**$2,220,000** over 12 year

* Pending re-authorization of the Farm Bill after December 31, 2007.

Total Estimated USDA Farm Service Agency (FSA) Cash Contributions

USE	Establishment	Rental/Maintenance	Total USDA – 15 Year
Habitat Resource Block 20,000 acres	Prep & Cover[1] - $400,000 Grass Seeding[2] - $800,000 Total Est. - $1,200,000	$800,000/year ($35.00/acre + $5.00 maintenance payment)	One time cost - **$1,200,000** Rental **$12,000,000**
Alternate HBR 3,000 acres	Prep and Cover[1] - $60,000 Grass Seeding[2] - $120,000 PIP 40%[3] - $48,000 Total Est. - $228,000	$120,000/yr ($35.00/acres+$5.00 maintenance payment)	One time cost - **$228,000** Rental - **$1,800,000**
Corner Resource Area 7,000 acres	Prep & Cover[1] - $140,000 Grass Seeding[2] - $280,000 Total Est. - $420,000	$280,000/year ($35.00/acres+$5.00 maintenance payment)	One time cost - **$420,000** Rental - **$4,200,000**
Total			One time cost - **$1,848,000** Rental - **$18,000,000** Total - **$19,848,000**

Total Estimated Project Cost - Cash	**($19,848,000 Federal, $4,063,250 Partner)**
Partner In-Kind from page 37	**$1,378,000 (Partner in-kind percentage = 5%)**
Total CREP Costs	**$25,289,250 (Partner direct payment percentage = 16%)**

[1]Estimates calculated at $40.00/acre for 20,000 acres of HBRs, 3,000 acres of alternate HBRs, and 7,000 acres of Corner Resource Areas multiplied by 0.50 federal cost share rate.
[2]Estimated calculated at $80.00/acre for 20,000 acres of HBRs, 3,000 acres of alternate HBRs and 7,000 acres of Corner Resource Areas multiplied by 0.50 federal cost share rate.
[3]Practice Incentive Payments on 3,000 acres of CP-24 at 40% of establishment costs.

Exhibit K

USDA- NRCS Environmental Quality Incentive Program (EQIP)
Conservation Practice CP 329a (Pheasants) Cost-Share

USE	UNIT	Practice
Habitat Resource Block, associated wheat fallow	60,000 acres	Retain tall wheat (>15" tall) on harvested wheat adjacent to Habitat Resource Block
Alternate HBR 3,000 acres	9.000 acres	Retain tall wheat (>15" tall) on harvested wheat adjacent to Habitat Resource Strips
Total	**69,000 acres**	

Incentive Payment Practices –

Practices approved for Incentive Payments and approved rates for Fiscal Year 2005	
Practice	**Rate**
Residue Management (pheasants) 5/	$15.00/Acre
Wildlife Habitat Management	$3.00/Acre

5/ - For Wildlife issue sign-ups ONLY. The practice is only for areas where pheasants are likely to occur as determined by NRCS or CDOW wildlife biologists. This is a special wheat residue management practice specifically for Pheasant habitat improvement, not erosion control or water quality/quantity. Producer may NOT receive both the regular Residue Management incentive and the Pheasant incentive. Producer may NOT receive both the Pheasant incentive and the regular Wildlife Habitat Management incentive on the same acres. To be implemented following guidance in Biology Technical Note 10. To qualify, wheat stubble must be at least 15 inches tall after harvest and no tillage is allowed before July 1st the following year. No long residual herbicide application is allowed. ***Spot spraying with contact herbicides for mustard and listed noxious Weed control is allowed at any time.

Pheasant *Habitat Improvement Program*

EXHIBIT L

NAME_____ **HABITAT PROJECT AGREEMENT** _____

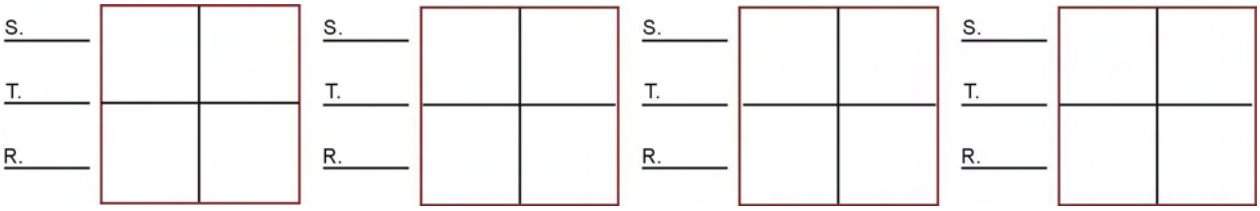
ADDRESS_____
Rte. Town State Zip

CREP AGREEMENT #_____CHAPTER NAME_____

HABITAT DEVELOPMENTS

APPROVED PHIP ANNUAL AND ONE-TIME INCENTIVES	NUMBER	SIZE/STYLE	ITEM COST	TOTAL COST	YEARS OF CONTRACT
CREP PRACTICE SIGNING INCENTIVE					1
HABITAT RESOURCE BLOCK					14
ALTERNATIVE RESOURCE BLOCK					14
CORNER RESOURCE AREA					14

*****SHOW LOCATION OF HABITAT DEVELOPMENTS ON SECTION MAPS*****



I hereby agree to manage my CREP adjacent acres according to the specifications for habitat development, located in Exhibit H in PHIPS Contract # XXX-06 as a condition of my enrollment and acceptance into the HIGH PLAINS CREP. I have read and fully agree to manage CREP adjacent acres in a Delayed Minimum Tillage wheat-fallow crop rotation as described in Exhibit H. Furthermore, as a condition of my enrollment in the HIGH PLAINS CREP, I agree to enroll said property(ies) into the Colorado Small Game Walk-In Access Program through the appropriate local Walk-In Coordinator. The Colorado Division of Wildlife will facilitate entry into the Walk-In Access Program.

.

*****SIGNATURES*****

LANDOWNER_____DATE_____

PHEASANTS FOREVER_____DATE_____

CHECK#_____AMOUNT_____DATE_____

SITE INSPECTION BY_____DATE_____

PLANTING INSPECTED BY_____DATE_____

White copy to Area Biologist
Yellow copy to Pheasants Forever Chapter Pink copy to Landowner **2005 Phipcont.frm**

Exhibit M
Reduced Fertilization and Chemical Application
Conservation Reserve Enhancement Program Acres only

The estimated reduction in fertilizer and chemical application through the implementation of a 30,000 acre CREP proposal is estimated in the table below. As this proposal targets only dryland winter wheat acreage, all estimates related to fertilizer and chemical reduction are based on the application rate specific to winter wheat.

Annual Estimated Reduction on Agriculture Fertilizers and Chemicals in Dryland Winter Wheat on 30,000 acres retired under this CREP proposal.

Product	Total CREP acres	Rate (#'s per acre)	Total Reduction (pounds)
Nitrogen	30,000	40	1,200,000
Phosphorous	30,000	20	600,000
Atrazine	30,000	0.50	15,000
Roundup	30,000	4.88	146,400
Banvel	30,000	0.25	7,500

The estimated reduction in fertilizer use on the approximate 69,000 acres that will continue to be cropped under a Delayed Minimum Tillage (DMT) or modified DMT system will not be significant, however the reduction on the amount of chemicals applied will be reduced substantially as a result of the restriction of herbicide use on the DMT acres. For the purpose of calculating fertilizer and chemical applications on the DMT acres, the biennial wheat fallow cropping rotations are used to illustrate the reductions. A typical herbicide program in a winter wheat production system would include the use of three applications of Roundup herbicide at a rate of 26 ounce per application, 0.2 ounces of Ally herbicide per acre, and approximately 4 ounces of Banvel herbicide per acre. It is also common in this rotational system to apply 0.50 pounds of Atrazine post harvest to control late summer and early fall weeds. It is estimated that some producers will continue to use some herbicides in the spring to control certain weeds.

Annual Estimated Reduction in Agricultural Chemicals in a Dryland Winter Wheat Cropping system on 69,000 acres that will be enrolled in the DMT program.

Product	Total non-CREP acres/2	Rate (#'s per acre)	Total Reduction (pounds)
Atrazine	34,500	0.50	17,250
Roundup	34,500	2.44	84,180
Banvel	34,500	0.25	8,625

Total Estimated Reduction in Agricultural Fertilizers and Chemicals (15 Years)

Product	Total CREP Acres	Total non-CREP acres/2	Total Reduction (pounds)
Nitrogen	30,000	34,500	18,000,000
Phosphorous	30,000	34,500	9,000,000
Atrazine	30,000	34,500	483,750
Roundup	30,000	34,500	3,458,700
Banvel	30,000	34,500	241,875

Exhibit N
Letters of Support

Several letters expressing support for the High Plains CREP proposal, the Republican River 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

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
Colorado Association of Conservation Districts
High Plains Land Conservancy
Colorado Farm Bureau
Colorado Department of Agriculture
Wray- Yuma Electric Association
Northeast Colorado RC and D

Additionally, verbal support has been expressed by the following individuals, agencies, and organizations. Support letters have been solicited, 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 State Congress

Senator Greg Brophy – Colorado Legislature

Sedgwick County Board of Commissioners

Republican River Conservation District
The Nature Conservancy

Numerous other groups, agencies and organizations have expressed support for the High Plains proposal, however a letter of support was not specifically requested.

Republican River
Conservation Reserve Enhancement Program

Colorado

Prepared by the State of Colorado

Project Co-Leader:
Tim Davis
Colorado CREP Administrator
Colorado Division of Wildlife

Project Co-Leader and Lead Author:
Scott Richrath
Project Manager
Colorado Division of Water Resources

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

Colorado's Republican River CREP Proposal 1
Section 1: Abstract 3
Section 2: Existing Conditions 5
Section 3: Agriculture Related Environmental Impacts 13
Section 4: Project Objectives 22
Section 5: Project Description 25
Section 6: Cost Analysis 27
Section 7: Monitoring Program 34
Section 8: Public Outreach and Support 36
Section 9: Compliance with Other Laws 37
Exhibit A – Conservation Priority Areas in Colorado 38
Exhibit B – Total Acres Irrigated in the Republican River Basin 39
Exhibit C – Current Land Uses within Basin 40
Exhibit D – Farm Demographics 43
Exhibit E – Beneficial Practices for Republican River Species 44
Exhibit F – Recent Re-Drilling throughout Republican River Basin 45
Exhibit G – Re-Drilling in Yuma County 46
Exhibit H – Aquifer Sensitivity in Colorado 47
Exhibit I – Reduced Chemical Application 48
Exhibit J – Sample of Irrigated and Dryland Allocation 50
Exhibit K – Irrigated Ground Water Pumping 51
Exhibit L – Proportionate Allocation of Irrigated Acres 52
Exhibit M – Resolution to Provide Local Funding 53
Exhibit N – Sample Contract Clause Retiring Water 56
Exhibit O – NRCS 8-Digit Hydrologic Unit Codes 63
Exhibit P – Public Outreach 64
Exhibit Q – Letters of Support 67

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

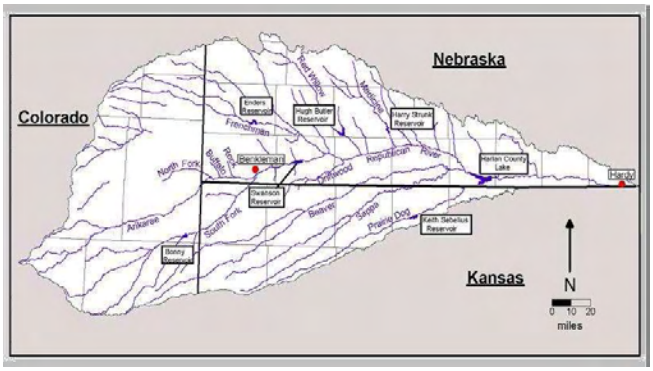
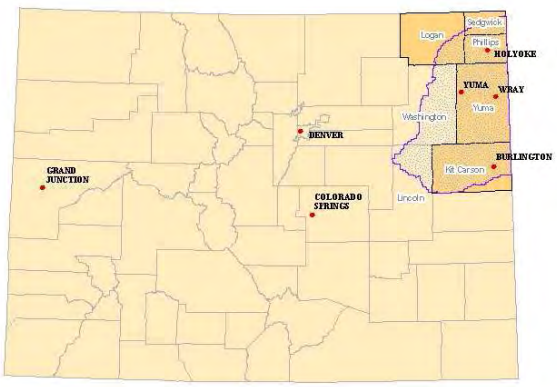


Figure 2 – Republican River Basin in Colorado



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

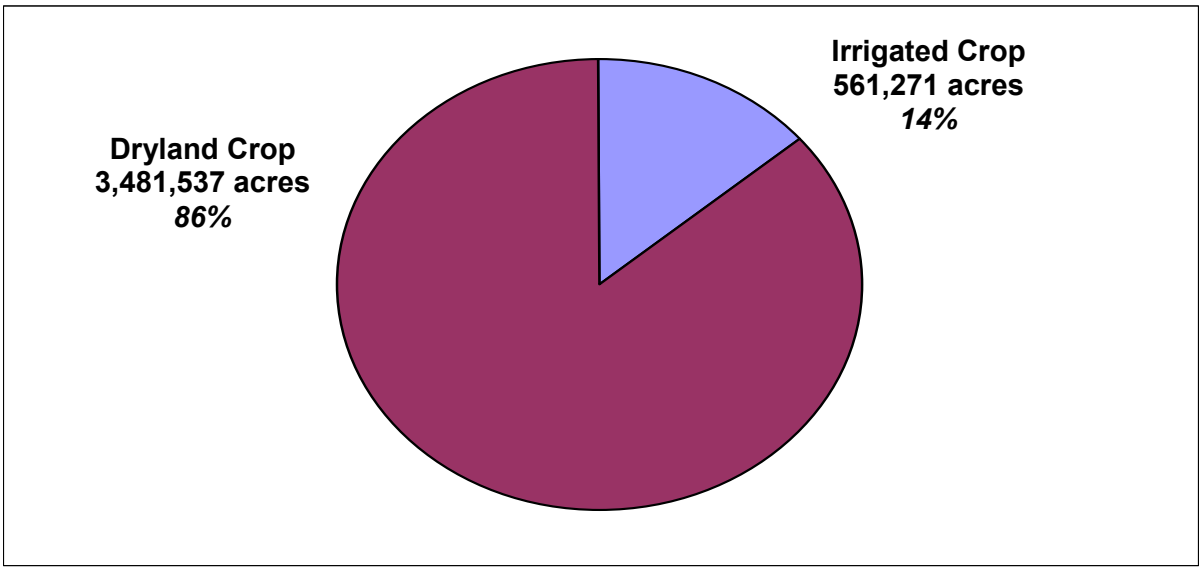


Table 4 describes pastureland and rangeland acreage in the Republican River Basin counties. Disclosure problems in this data tend to obscure a downward trend in acres in this category of land. The downward trend is also evident in the total amounts of pastureland and rangeland in Colorado, declining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

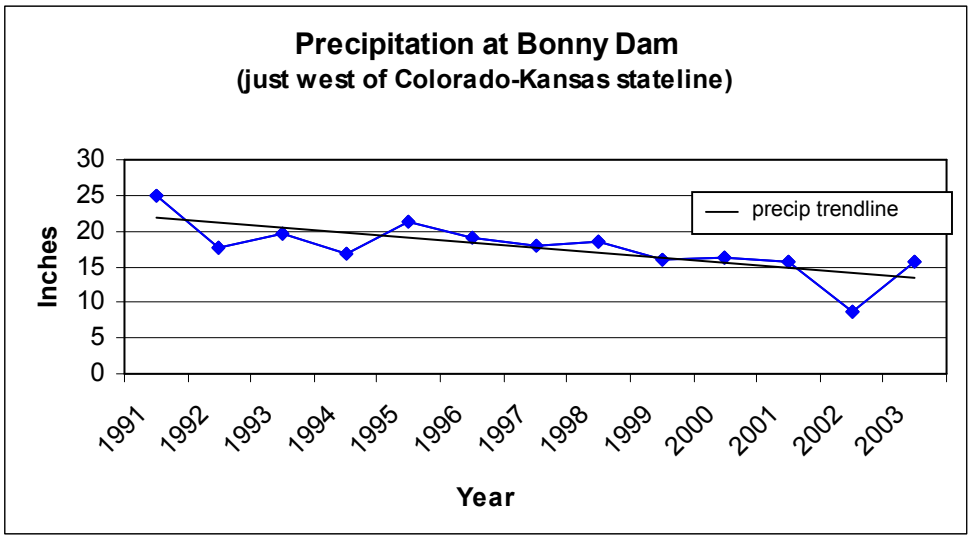
Farm Demographics

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:

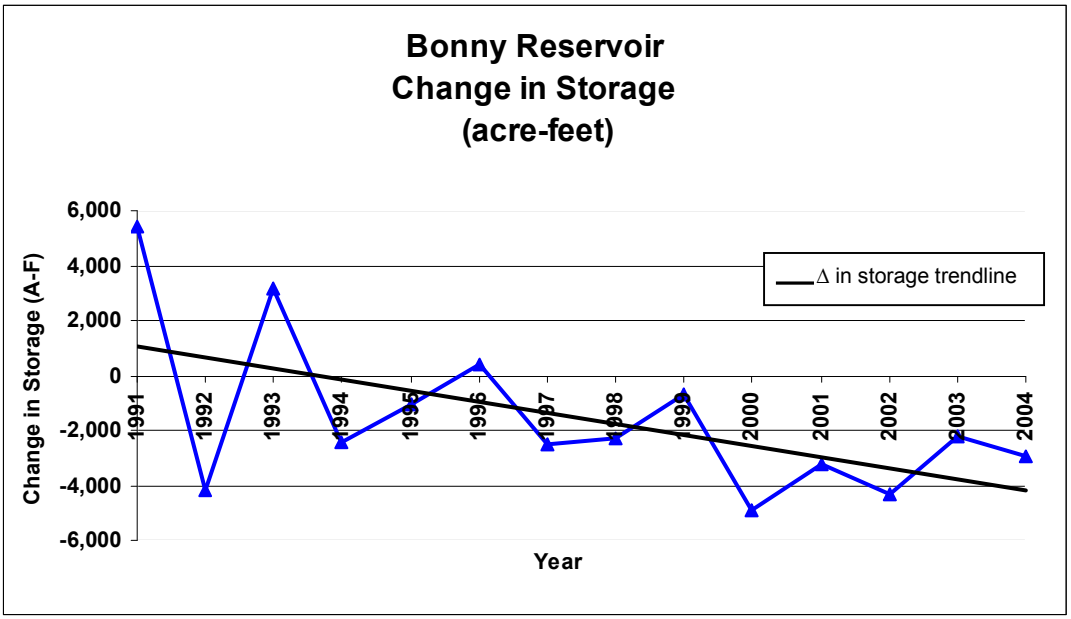
The Plains Forest Riparian and Wetlands Complex is located along the perennial stretches of the river systems and tributaries within the High Plains. Fluvial processes created a mosaic of diverse riparian systems dominated by plains cottonwood and peachleaf willow with an under story of switch grass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

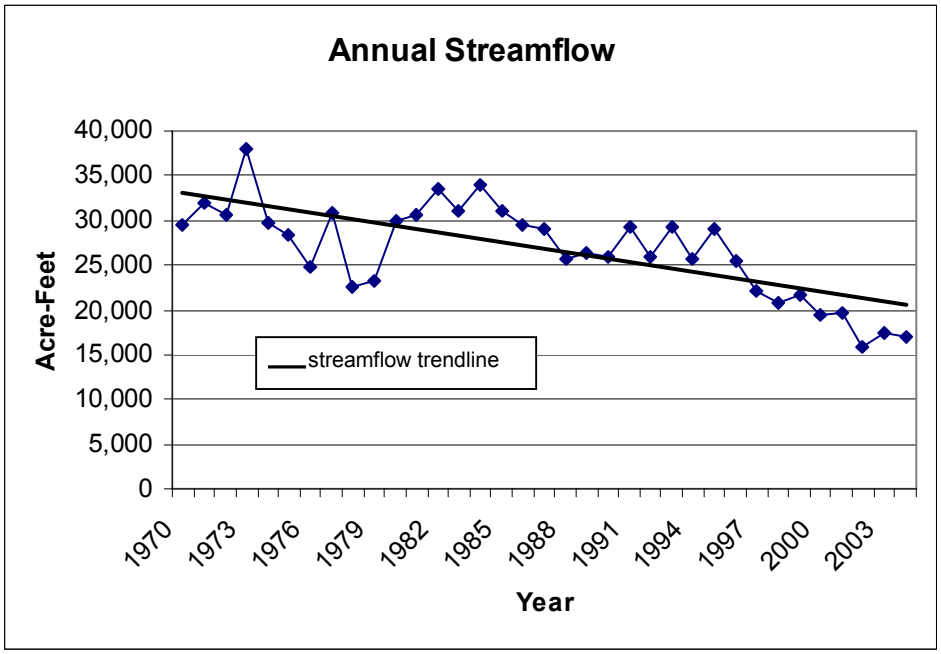
The plains minnow occurs in the Missouri River and western portions of the Mississippi system from Montana south to Texas. In Colorado, the species is only found in the Republican and Arkansas River Basins. The plains minnow is native to Colorado, but appears to be extremely rare. Plains minnows prefer 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

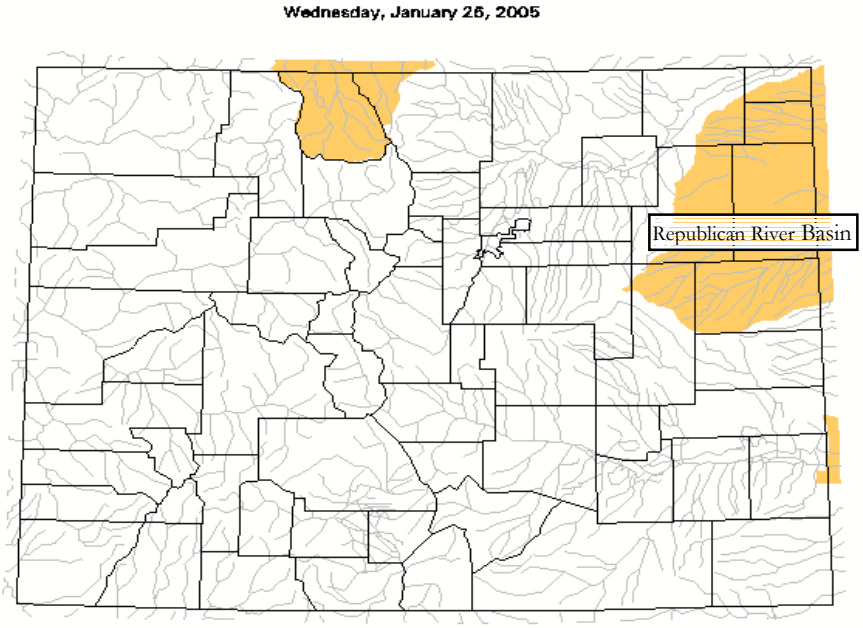
Water Trends: Ground water pumping has not only impacted Ogallala Aquifer levels. Intensive ground water pumping for agriculture and prolonged drought have also contributed to a reduction in surface water streamflows in all of the streams and tributaries within the basin. The combined effects of reduced 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.

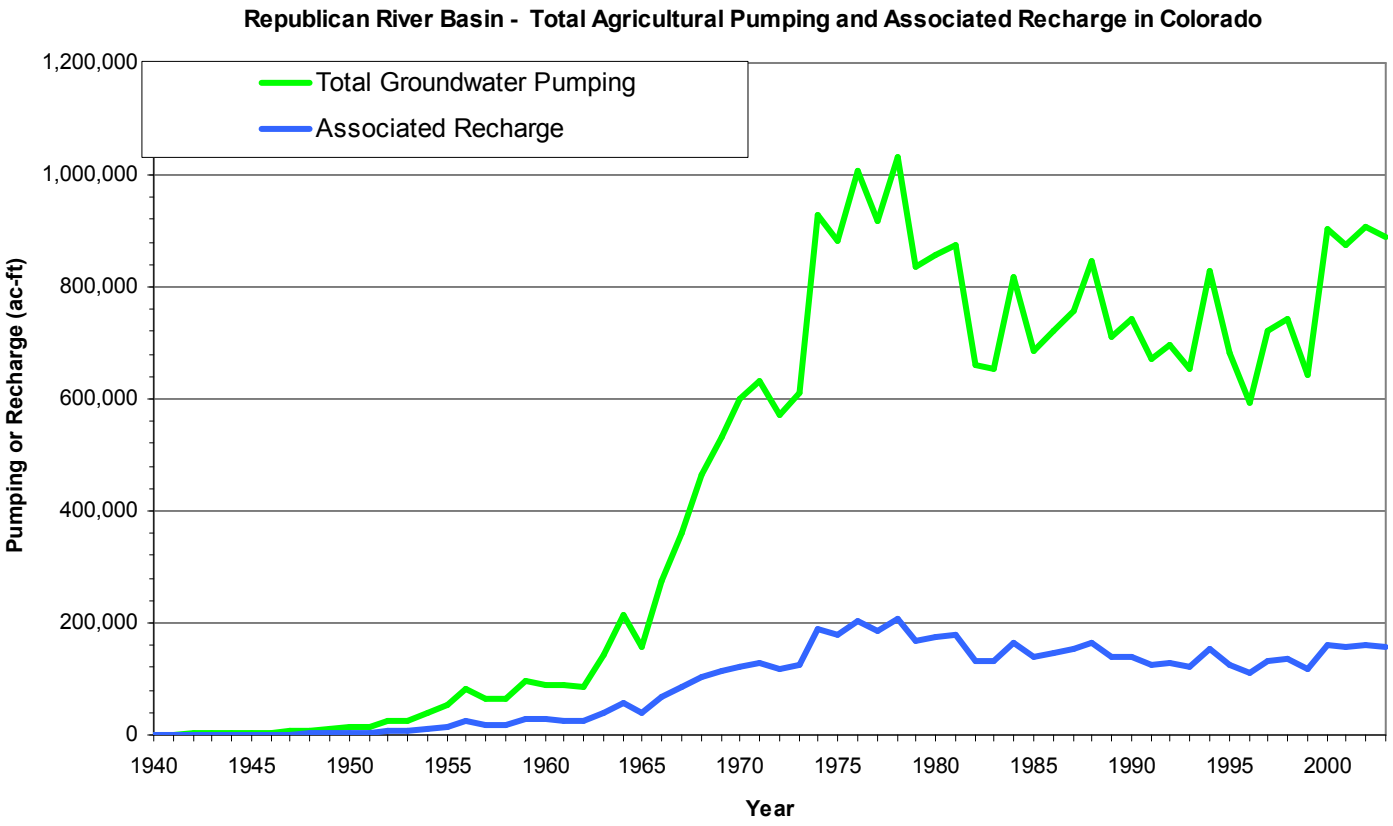
Conserve Ground and Surface Water

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

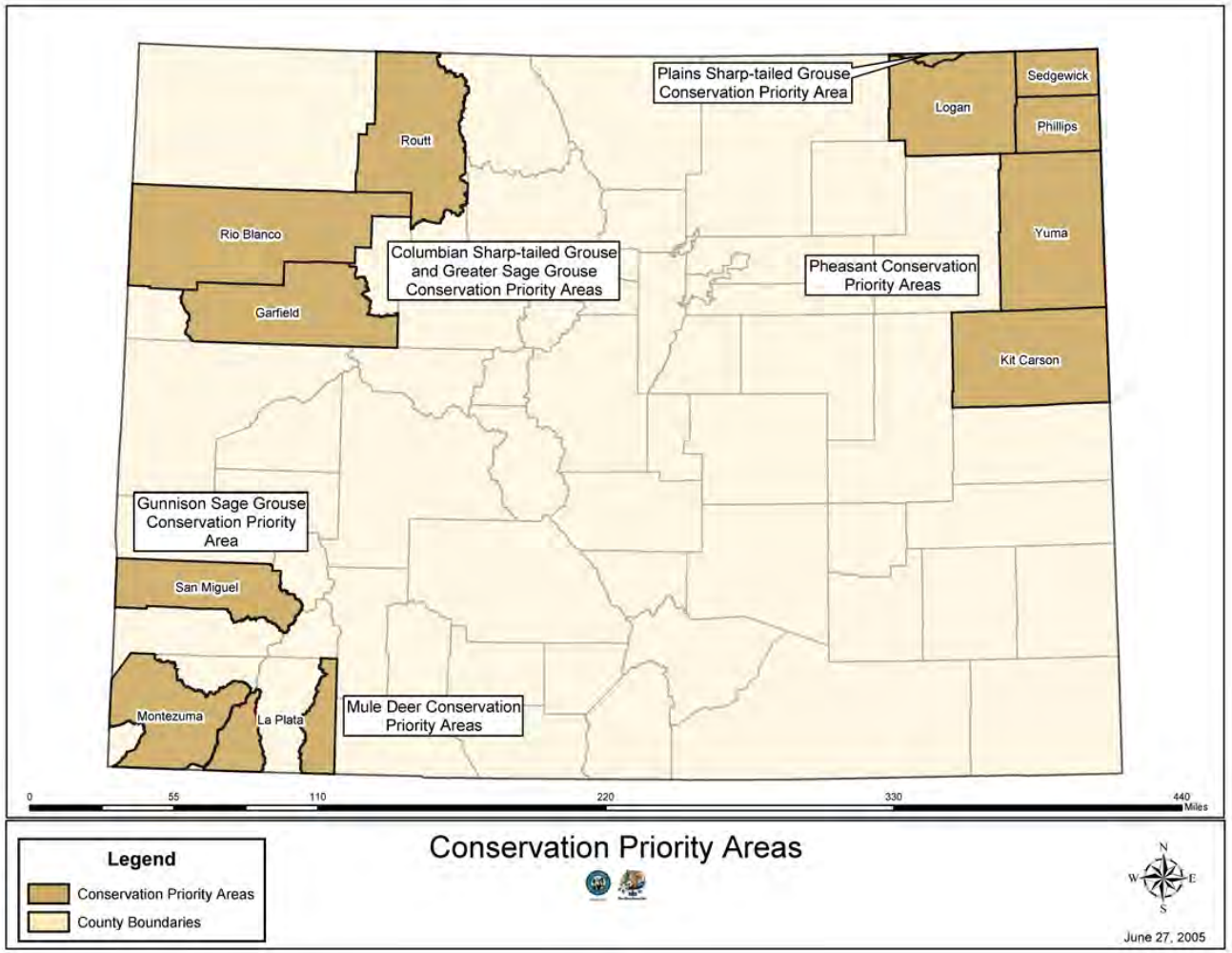


Exhibit B

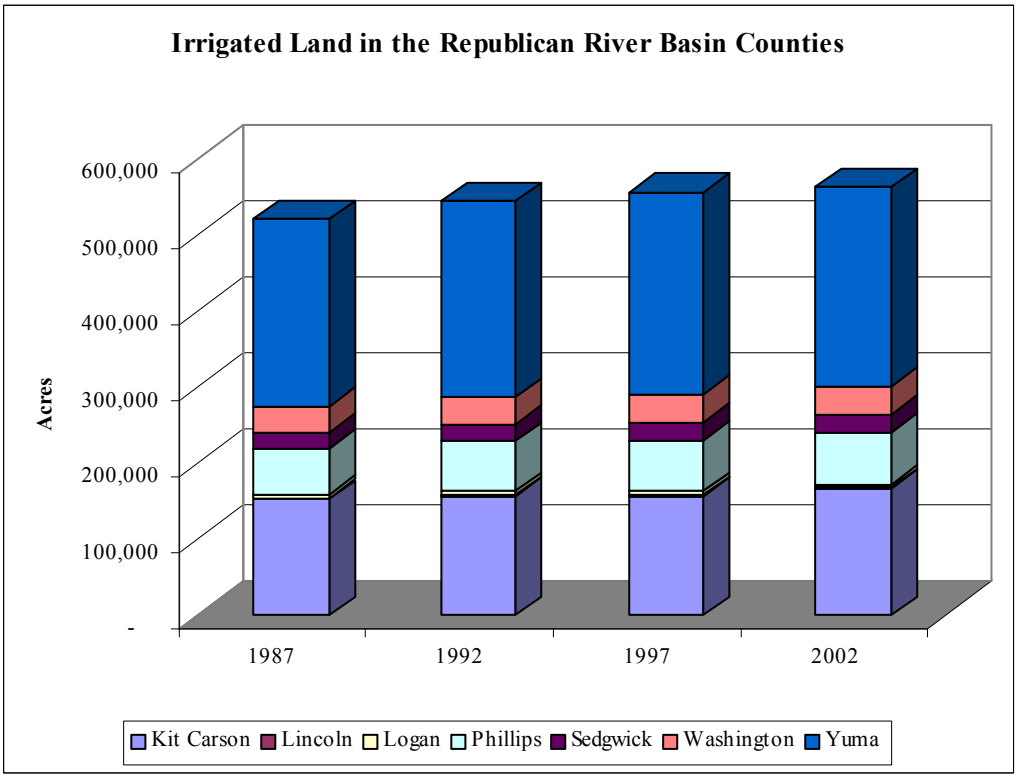
Total Acres Irrigated in the Republican River Basin

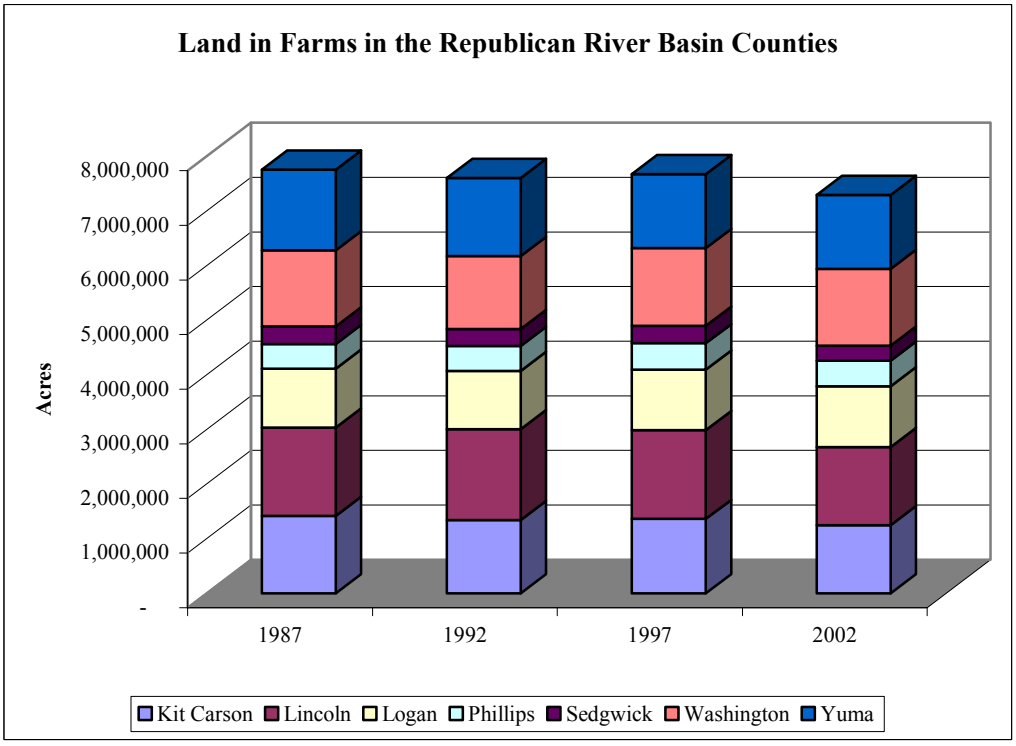
Data for 1956-2003 (acres)

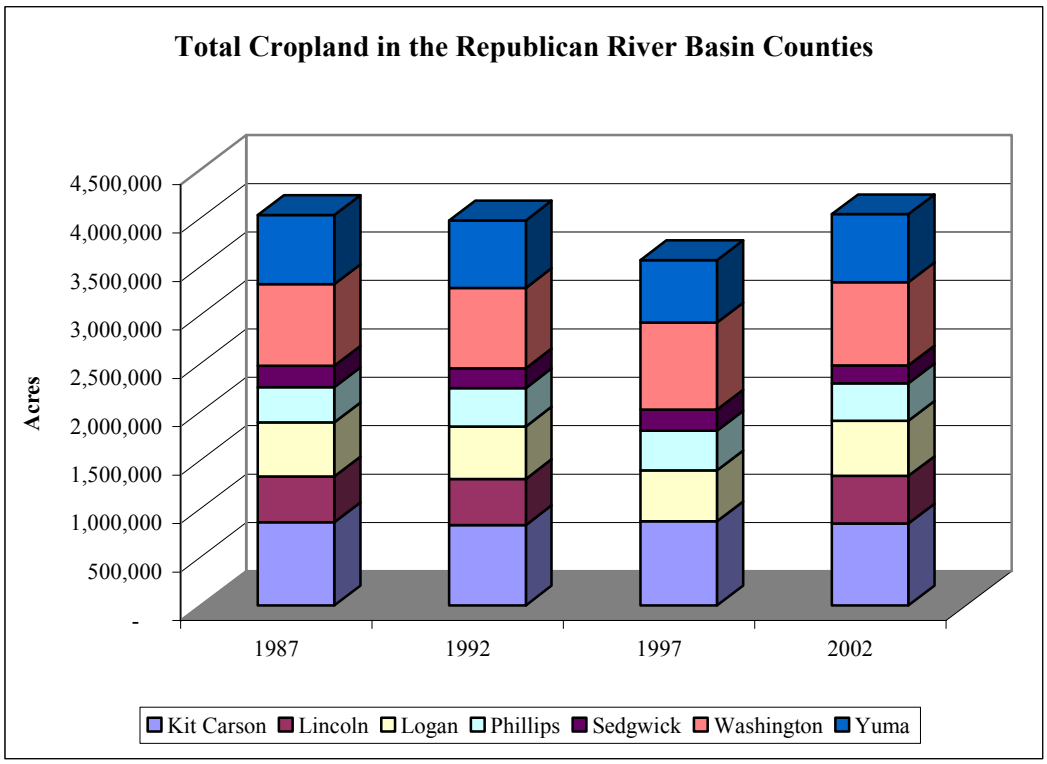
Year	Kit Carson	Lincoln	Logan	Phillips	Sedgwick	Wash-ington	Yuma	Total Acres all Sources
1956	20,151	313	104	2,524	475	3,090	15,055	41,712
1957	22,736	313	223	2,709	656	3,454	16,627	46,718
1958	23,643	353	223	2,821	656	3,514	17,355	48,565
1959	25,833	353	223	2,925	656	3,642	17,519	51,151
1960	27,591	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

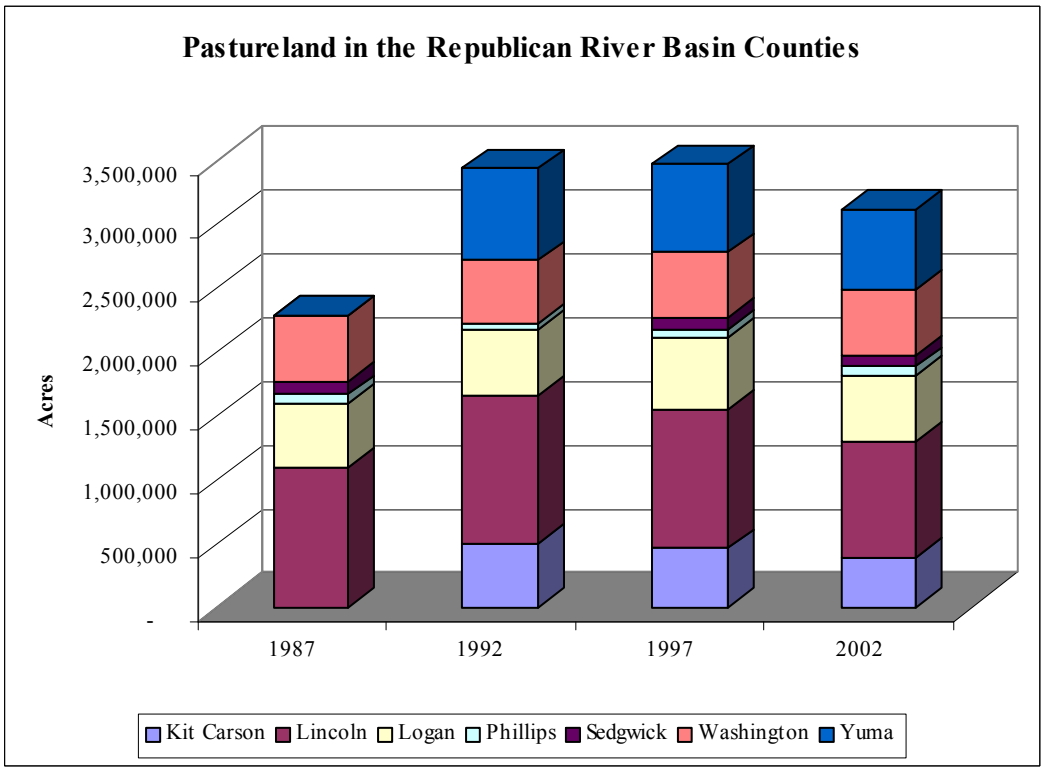
Exhibit C

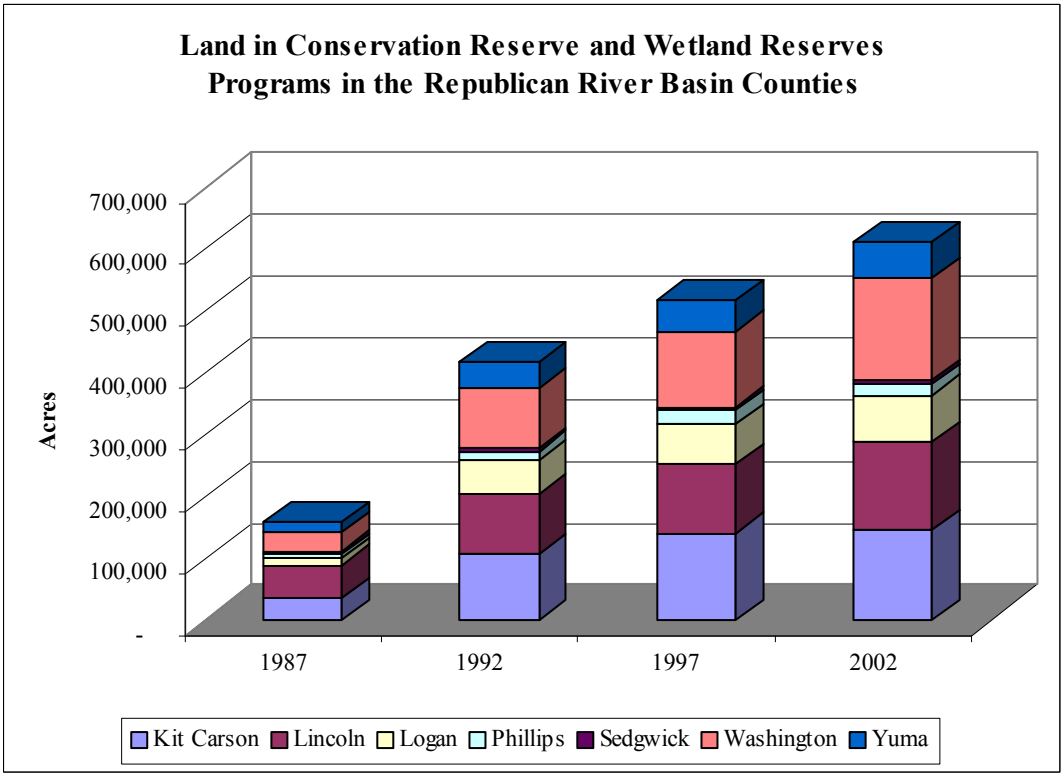
All graphs depict Republican River Basin agriculture, and thus include the CRP-capped counties of Lincoln and Washington.






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

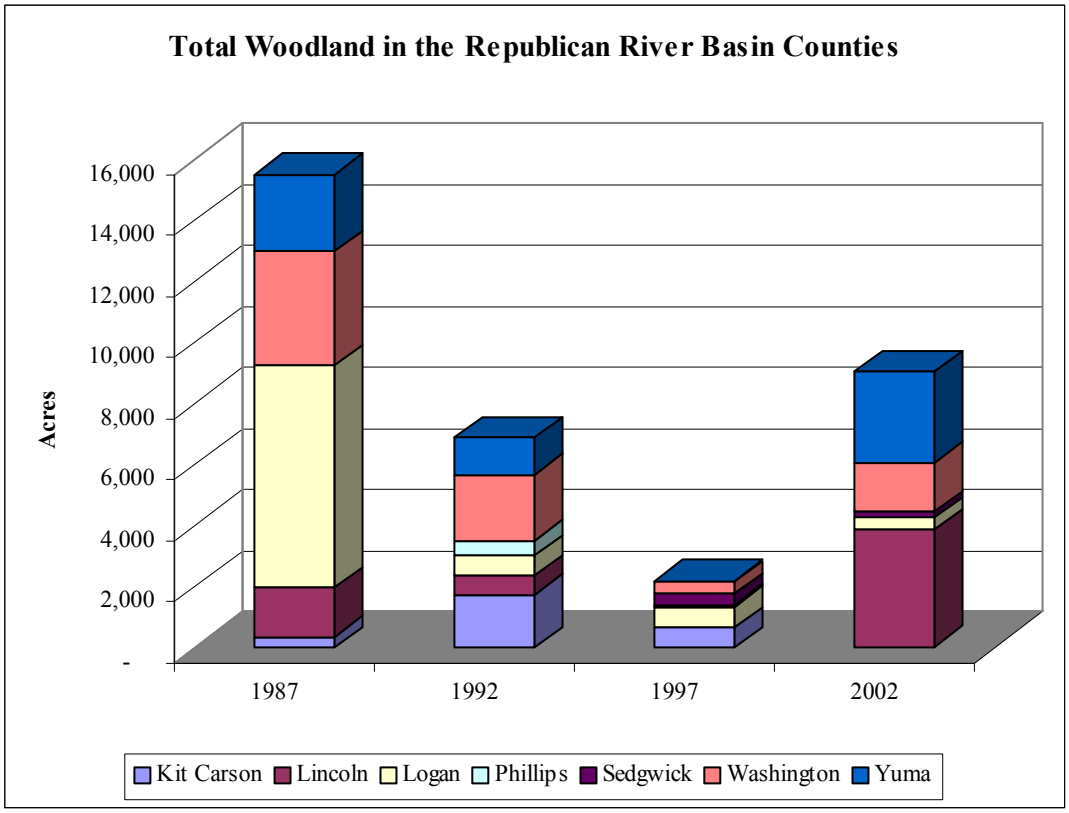

Total Woodland in the Republican River Basin Counties
Acres
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
1987
1992
1997
2002
Kit Carson
Lincoln
Logan
Phillips
Sedgwick
Washington
Yuma

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

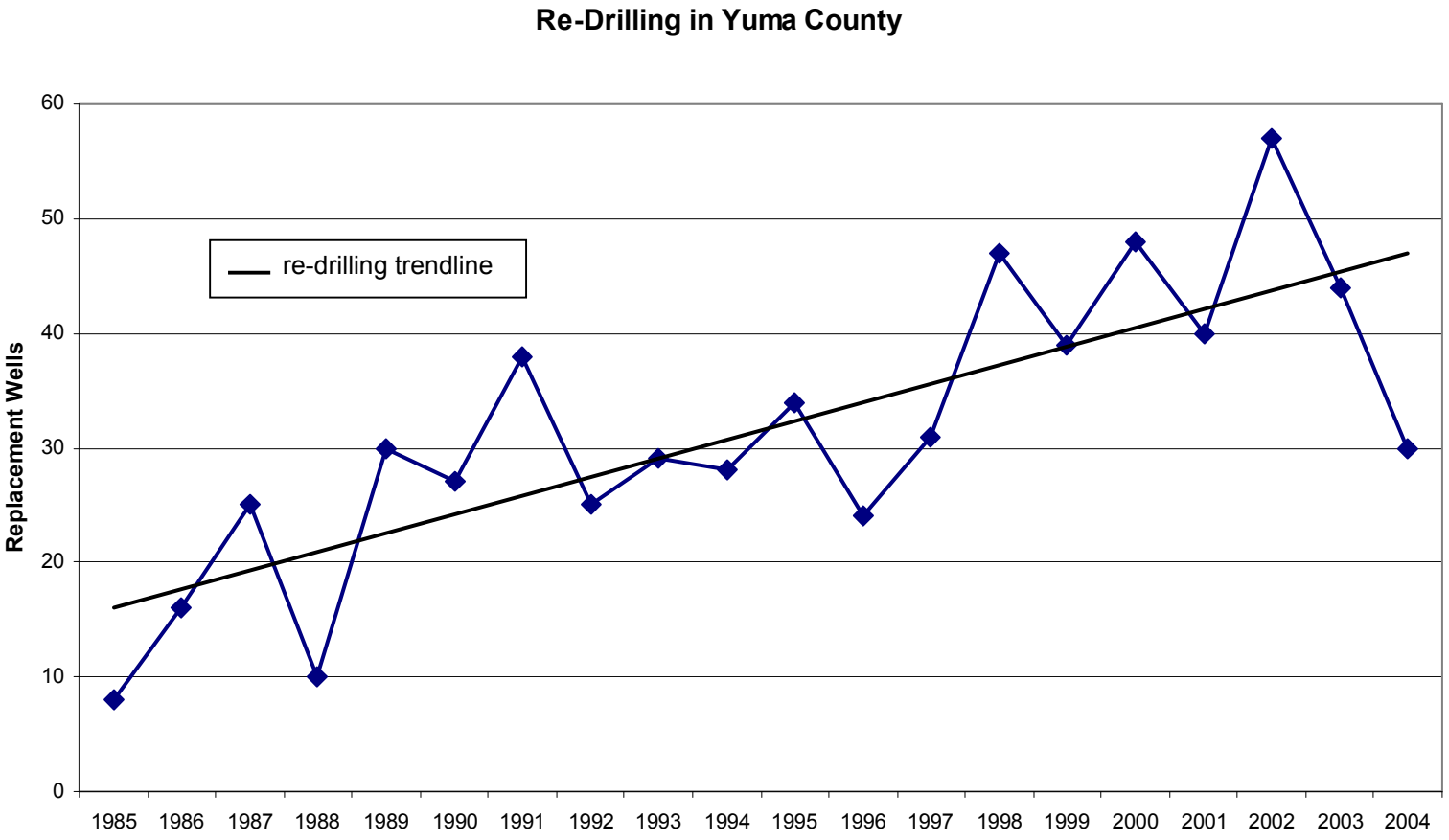
Exhibit F

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.

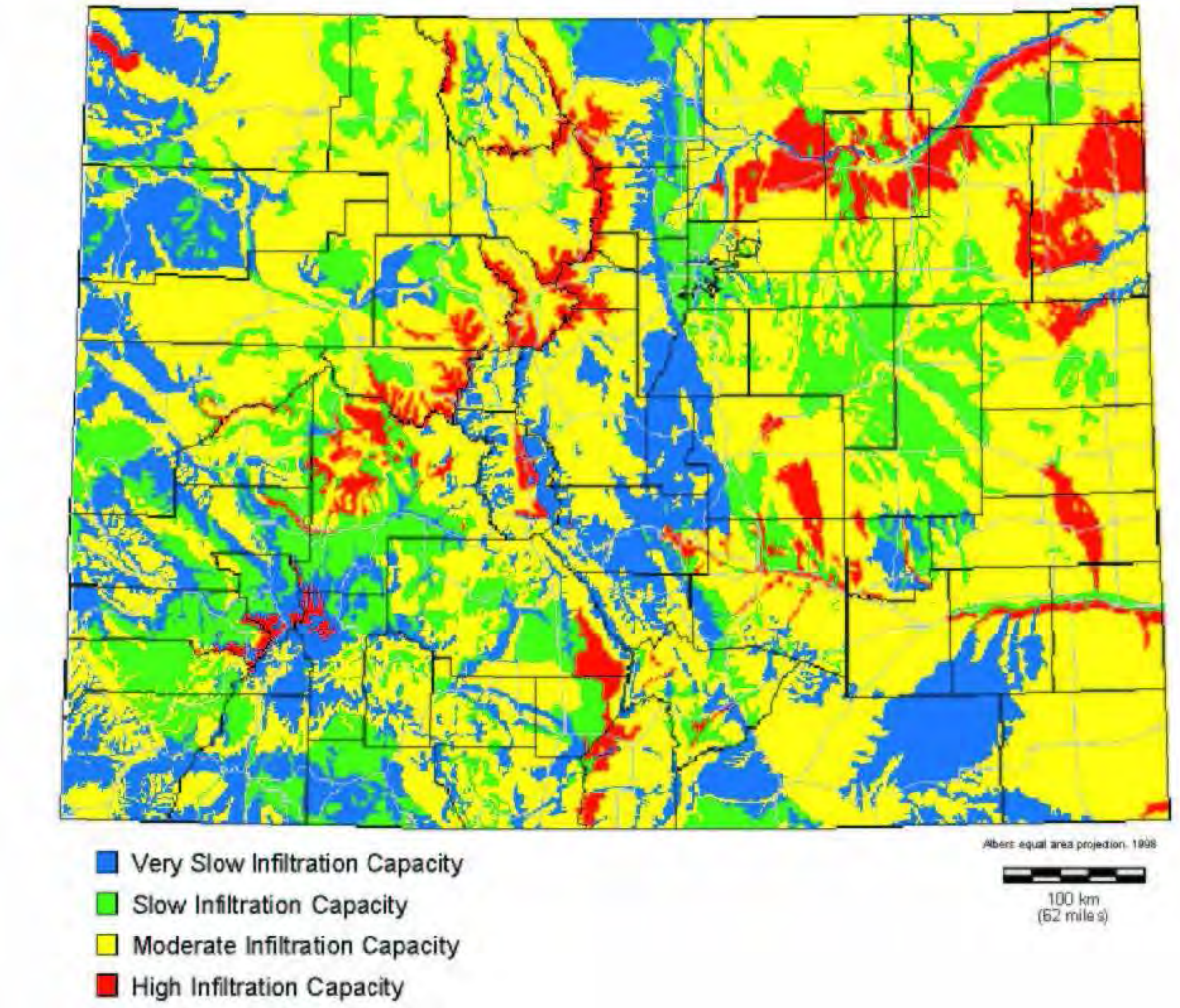
Exhibit G



(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.

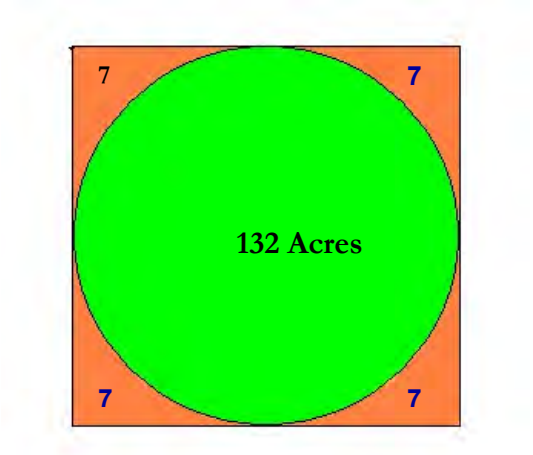
Table I-5. Estimated Reduced Agricultural Chemical Usage in Winter Wheat

	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

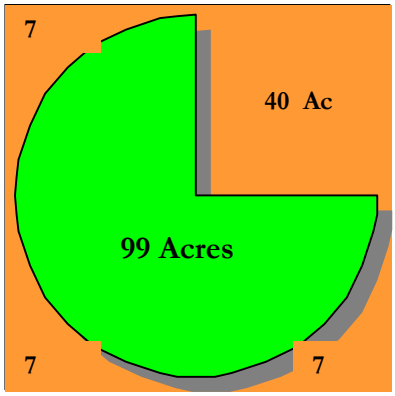
Examples of Groundwater Pivot Irrigated and Associated Dryland Acre Allocation

Example 1



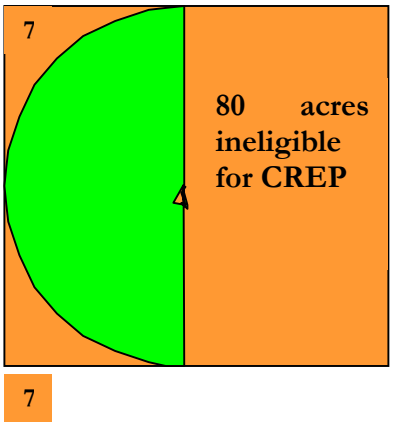
132 acres (circle) enrolled under CREP @ irrigated rental rate
28 acres (corners) enrolled under CREP @ dryland rental rate
All 160 acres retired for 14- or 15-year period.
Water retired permanently on entire circle (132 acres).

Example 2



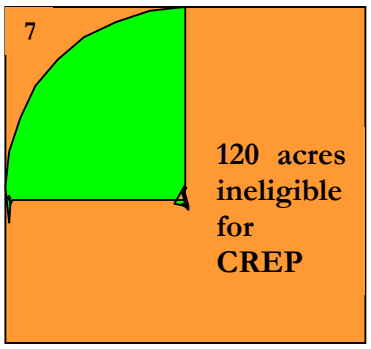
99 acres (3/4 circle) enrolled under CREP@ irrigated R.R.
21 acres (3 corners) eligible dryland corners @ dryland R.R.
All 120 acres retired for 14- or 15-year period.
Water retired permanently on ¾ of circle (99 acres).

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

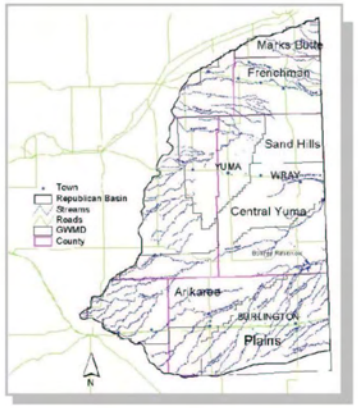
COLORADO DIVISION OF WATER RESOURCES
DEPARTMENT OF NATURAL RESOURCES

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/RrepublicanRiver.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

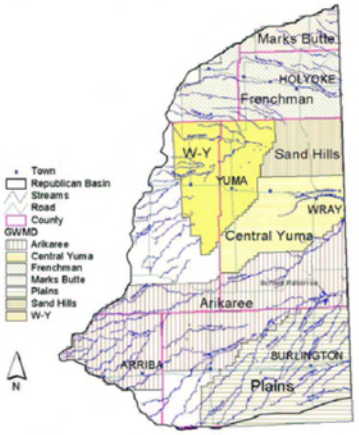
COLORADO DIVISION OF WATER RESOURCES

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

This page intentionally left blank

APPENDIX C: CONSERVATION PRACTICES

This page intentionally left blank

National CRP Practices

A summary of the CRP Practices proposed in the Colorado CREP Agreements is provided below. Requirements, policy, and other detailed information for each practice can be found in the FSA Handbook: *Agricultural Resource Conservation Program*.

Practice	Title	Purpose
CP2	*Establishment of Permanent Native Grasses*	The purpose of this practice is to establish a vegetative cover of native grasses on eligible cropland that will enhance environmental benefits.
CP4D	*Permanent Wildlife Habitat, Noneasement*	The purpose of this practice is to establish a permanent wildlife habitat cover to enhance environmental benefits for the wildlife habitat of the designated or surrounding areas.
CP12	*Wildlife Food Plots*	The purpose of this practice is to establish annual or perennial wildlife food plots that will enhance: ▪ wildlife ▪ wildlife habitat
CP21	*Filter Strips*	The purpose of this practice is to remove nutrients, sediment, organic matter, pesticides, and other pollutants from surface runoff and subsurface flow by deposition, absorption, plant uptake, denitrification, and other processes, and thereby reduce pollution and protect surface water and subsurface water quality while enhancing the ecosystem of the water body.
CP22	*Riparian Buffer*	The purposes of this practice are to: ▪ remove nutrients, sediment, organic matter, pesticides, and other pollutants from surface runoff and subsurface flow by deposition, absorption, plant uptake, denitrification, and other processes, and thereby reduce pollution and protect surface water and subsurface water quality while enhancing the ecosystem of the water body. ▪ create shade to lower water temperature to improve habitat for aquatic organisms. ▪ provide a source of detritus and large woody debris for aquatic organisms and habitat for wildlife.

Practice	Title	Purpose
CP23 **CP23A**	*Wetland Restoration* *Wetland Restoration, Non-Floodplain*	The purpose of this practice is to restore the functions and values of wetland ecosystems that have been devoted to agricultural use. The level of restoration of the wetland ecosystem shall be determined by the producer in consultation with NRCS or TSP.
CP24	*Establishment of Permanent Vegetative Cover as Cross Wind Trap Strips*	The purpose of this practice is to establish 1 or more strips, varying in size, of permanent vegetative cover resistant to wind erosion perpendicular to the prevailing wind direction on eligible cropland with a wind erosion EI greater than or equal to 4 (EI ≥ 4) that will: ▪ reduce on-farm wind erosion. ▪ trap wind-borne sediments and sediment borne contaminants. ▪ help protect public health and safety.

APPENDIX D: COOPERATING AGENCY MEMORANDUMS OF UNDERSTANDING

STATE OF COLORADO

DEPARTMENT OF AGRICULTURE

700 Kipling Street, Suite 4000
Lakewood, Colorado 80215-8000
(303) 239-4100
(303) 239-4125 FAX
www.ag.state.co.us

RECEIVED

JUN 2 4 2005

WATER RESOURCES
STATE ENGINEER
COLO.

February 14th 2005

13.12

To: Tim Davis
CREP Coordinator
Colorado Division of Wildlife
6060 Broadway
Denver, CO 80216

Dear Tim

Over the past few months the Colorado State Conservation Board has been participating in the interdisciplinary group convened to discuss the Division of Wildlife's (DOW) Colorado High Plains CREP proposal in eastern Colorado. During these meetings we have learned about the proposal and about the viewpoints of the other stakeholders participating in the process as well as having the opportunity to comment.

The Colorado State Conservation Board supports the seventy-seven conservation districts throughout Colorado and their locally-led efforts to implement natural resource conservation efforts on private lands. This CREP offers many benefits for the landowners that are the clientele and partners of conservation districts. The farms of eastern Colorado, where the CREP is proposed, has suffered greatly economically over the last several years – due to both severe persistent drought conditions and falling farm commodity prices. This has led to an economic squeeze on agricultural producers who are forced to respond by trying to increase cropping outputs to remain viable – a story the conservation districts are familiar with. This has meant agricultural intensification – with more frequent cropping by shortened rotations and use of alternative crops in what would have traditionally been fallow periods. Intensification can sometimes lead to negative natural resource effects caused by increasing agricultural inputs, depleting resources or disturbing wildlife habitat. This CREP area sits over the Ogallala Aquifer – the source of drinking water and irrigation water for almost all inhabitants of the area and across other semi-arid states. We are aware that this aquifer is a source of considerable concern because it is well documented that it is being used at many times the rate at which it is being replenished.

This CREP is particularly attractive to the State Conservation Board because it is multi-dimensional. Not only does it address water use over the important Ogallala aquifer and provide wildlife benefits, but it also provides an economic base for agricultural producers to remain on the land in an area with a struggling rural economy. The State Conservation Board believes sustainable environmental benefits on working lands must have a sound economic component. This CREP, by going beyond just CREP enrolled acres, maximizes the area of gain for environmental benefit while also promoting environmentally sensitive production methods on land that is actually bringing in farm gate income.

We offer our support to this CREP proposal as a well thought out response to potential natural resource consequences of increased cropping intensification in eastern Colorado, and the economic root cause fueling that intensification.

Yours sincerely

Veryl Eschen

Veryl Eshen
President, Colorado State Conservation Board

PHEASANTS forever®

NATIONAL HEADQUARTERS
1783 Buerkle Circle
St. Paul, Minnesota 55110
(651) 773-2000
(651) 773-5500 FAX

April 25, 2005

Colorado Division of Wildlife
Tim Davis – Colorado CREP Coordinator
8118 CR 370
Sterling, CO 80751

H.P. 6/1/1

RE: Colorado High Plains CREP Proposal

Dear Mr. Davis:

Thank you for the opportunity to review the proposed Colorado High Plains Conservation Reserve Enhancement Program (CREP). Pheasants Forever is pleased to support this proposal and is confident that this CREP can have significant positive impacts on pheasants and other wildlife populations in eastern Colorado. The proposal's concepts are based on proven practices, those which have succeeded in other areas of the country and which we are confident will succeed in Colorado pheasant range.

Pheasants Forever has long held that the Conservation Reserve Program (CRP) is the single most important wildlife conservation program in the history of the federal farm policy. No other program has done more to ensure long-term high quality habitat for pheasants and other grassland species on a national scale. In many areas of the county today, the permanent cover provided by the CRP is the only grass available to meet the nesting, brood-rearing, roosting, and winter cover needs of grassland birds.

The Colorado High Plains CREP proposal combines the permanent cover of CRP with adjacent crop management practices that have been shown extraordinarily successful in other areas of the country. Wheat stubble management has proven itself throughout the wheat country of Kansas and Nebraska where state programs on private cropland have created thousands of acres of high quality nesting, brood-rearing, and winter cover for grassland birds. Increased post-harvest stubble height, decreased herbicide use, and minimum tillage will help to provide more reliable cover as well as increased food sources for birds throughout their lifecycle.

The benefits of these crop management practices extend well beyond wildlife. Decreased use of herbicides & tillage will help to protect ground and surface waters, improve soil moisture, and improve soil quality to improve the sustainability of this agricultural system.

As an organization committed to cooperative efforts between conservationists and the agricultural community we are especially pleased to see the dedication to whole farm management as demonstrated in this proposal. The voluntary, incentive-based nature of promoting wildlife friendly farming on the whole farm will serve not only to meet the conservation needs of a pressured landscape, but help to stabilize and provide support for the agricultural community in these areas.

The High Plains region of Colorado has great potential to be prime country for pheasants and other grassland birds. This proposal will expand upon the on-going efforts of the Division of Wildlife and groups like Pheasants Forever to more effectively bring about that end. Pheasants Forever is excited to see this proposal implemented and will do all that we can to help you in this endeavor.

Sincerely,
PHEASANTS FOREVER, INC.

Rick Young
Vice-President of Field Operations

High Plains Land Conservancy
P.O. Box 305
Holyoke, CO 80734

4 May 2005

H.L.P.

Dear Mr. Gorman,

The High Plains Land Conservancy would like to express our support for the High Plains CREP Proposal that the Division of Wildlife is proposing for eastern Colorado.

Our review of the proposal finds two principles supported by our Conservancy and important to rural eastern Colorado, primarily, incentive-based conservation, and pro-active, focused promotion to maintaining small family farming operations. We are very interested to see this program 'on the ground', and anticipate tremendous benefits for the environment, wildlife populations, and landowners alike.

Of particular interest to the rural community in the project range is the emphasis your proposal gives to the importance of wheat farming, delayed minimum tillage, and of course, hunting access for the public. Certainly, from our perspective, a program that offers a multi-facet approach to conservation and agriculture practice is precisely the course of action necessary in today's world of high-intensity farming. We are very pleased to see that the proposal supports permanent cover establishment when combined with a managed wheat-fallow farming operation. This combination will result in far reaching benefit for our soils, water and wildlife.

Please consider our group as a partner in this proposal. If I can be of assistance, don't hesitate to call me at (970)-854-3390.

Sincerely,

Bruce Rosenbach

Bruce Rosenbach
High Plains Land Conservancy

Comments on Republican River Conservation Reserve Enhancement Program

Submitted by Ted Toombs and Tim Sullivan
Center for Conservation Incentives at Environmental Defense
May 16, 2005

ATTN: Tim Davis and Scott Richrath

Thank you for the opportunity to provide our comments and recommendations on the Republican River Conservation Reserve Enhancement Program (CREP) proposal. Environmental Defense has more than 400,000 members nationwide, including many agricultural producers, who are concerned with numerous environmental challenges that CREP can help address. Our organization has a strong commitment to the use of incentives to improve private land conservation and strongly supports the efforts of States and Farm Services Agency (FSA) to advance key conservation goals through the voluntary, incentive-based programs like CREP.

General Comments

Environmental Defense support's the State's effort to coordinate with FSA in the development of the Republican River CREP. This proposal addresses a resource concern of high national and regional priority.

Environmental Defense strongly supports the primary goal of the CREP, to conserve ground and surface water through the permanent retirement of irrigation rights from surface and groundwater. This is an innovative use of Farm bill programs to address a resource concern affecting the sustainability of agriculture in the area, while improving environmental conditions in a high priority ecological area.

Below we provide some recommendations on how strengthen this proposal to achieve more conservation benefit. Our recommendations include developing more clear conservation targets (water and wildlife related), refining the objectives, costs, practices, monitoring associated with the targets, and creating a system to tailor applied conservation practices to retired acres in a way that better meets the project's objectives.

We would welcome the opportunity to work with your two agencies to help develop language for the proposal or in the implementation that would address these recommendations.

Specific Comments

Addressing water rights and in-stream flows

The key objective for the project is to reduce consumptive use of water for agriculture in the watershed and benefit in-stream flows for at-risk aquatic species. While the proposal details the incentives to be applied to attract offers to retire land from irrigated agriculture, it is less clear on how the water thus made available will be protected from further appropriation and dedicated to in-stream uses. A discussion of the ability of the State Engineer's office to deny any further groundwater permits in the watershed, and the ability to protect the in-stream flows from appropriation by junior water rights holders in the basin seems necessary in order to judge the long-term impact of the project on stream flows and groundwater levels.

Developing more clear conservation targets

The national CREP guidelines prioritize projects that "would provide significant restoration of a species on or identified as candidates for listing on the Federal Endangered Species List" (2-CRP Manual, page 21-5). Environmental Defense recommends targeting a suite of at-risk and declining species, some of which are listed in Appendix E, for each general soil type (including wetlands) likely to undergo restoration. A target species list should be developed for each and listed in an Appendix. We would be happy to assist in the creation of target species lists. In general, we believe the proposal does a better job of identifying at-risk fish species than it does in considering the targets for upland wildlife. Since the objective of the CREP should be to maximize benefit for these declining species, there should be very limited circumstances where funds were being used to restore habitat specifically for ring-necked pheasant. These should be limited to lands that had limited potential to benefit other wildlife species, and not allowed in circumstances where this type of habitat might prove detrimental to existing wildlife populations.

The proposal prioritizes surface water conservation by providing higher incentives for surface irrigation retirement. It also prioritizes ground water retirement for lands increasingly close to the North and South Fork of the Republican River. We support both of these priorities, however, we urge you to consider prioritizing the Arikaree River over either fork of the Republican as long as the water savings would not be reduced. According to The Nature Conservancy (TNC), this River is in the best ecological condition of all in the watershed, and would benefit most dramatically from plant community restoration. The Arikaree should be added to the table on page 24, and could be prioritized in other ways such as by allocating a portion of the funds especially for this River stretch or by adding bonus points for the Arikaree. In addition, TNC has completed a significant amount of conservation planning related to this priority site, and this data could be helpful in determining appropriate conservation targets for the area.

An objective of the CREP is to restore retired sites to native vegetation thereby creating new habitats for upland and wetland wildlife and reducing the use of fertilizer and herbicides. However, the proposal does not clearly indicate which plant communities and species will be targeted. Obviously, this depends upon which lands are prioritized for

water savings. Once it is determined where water and land retirement is likely to occur, these sites should be overlaid with a soils map. Soil type and landscape context (i.e. what natural habitats exist in near proximity to the retired acres) should then determine what plant communities it is appropriate to restore and what wildlife species should be targeted in those communities. There may be more variety in soil type present in the watershed than the proposal currently indicates, suggesting that there is a wider range of plant mixes that would be needed for restoration, including sandsage prairie, mixed grass prairie, and shortgrass prairie. The attached appendix offers some suggestions for using soil type and landscape context to direct conservation practices to benefit target species.

Refine objectives, costs, practices, monitoring to address targets

Objectives should be refined according to more clear water and wildlife targets. For example, there is no explanation given for how goal #3, "establish a minimum of 30,000 acres of native grassland" was derived, or how the proportion of tall to short grass plantings resulted in 7:1 (22,000 acres of tallgrass, 3,000 of shortgrass). With clearer water targets and soils mapping, these proportions would be more accurately estimated and the costs could be more accurately calculated.

The proposal should consider adding management requirements in the conservation plans developed on the restored sites, and including guidelines for at-risk species management in the proposal. Specific management actions directed at restoring habitat for specific species would likely ensure that more conservation benefit is gained from the restorations. If the current mid-contract payments are insufficient to encourage landowners to undertake these actions, then the practice incentives should be adjusted or added accordingly (ex: provide incentive for light disking or prescribed burning to enhance habitat).

The proposal should consider whether particular conservation practices would require specific adjustments in order to more appropriately address the target species benefits. For example, burning or grazing may be required to establish or improve grass plantings to reach specific at-risk species goals. We have attached some management guidelines that could be used for target species on shortgrass and sand sage restoration sites.

Monitoring should be tied directly to water, and wildlife species targets. We recommend coordinating target species monitoring into exiting efforts, such as annual Rocky Mountain Bird Observatory section surveys. Monitoring of pheasant and bobwhite quail populations is not sufficient to assess benefits to other at-risk species targets.

Appendix CREP covers, target areas, and management for at-risk species in eastern CO.

1) **Short Grass Prairie**

Priority species: Mountain Plover, Ferruginous Hawk, Burrowing Owl, McCown's Longspur, Long-billed Curlew, Horned Lark, Lark Bunting, Western Meadowlark, Prairie Falcon, Swift Fox.

Target Lands:
Soils – upland hard soils, loams, clay-loams, and clays.
Minimum field size – 320 acres.
Contiguity to existing habitat –fields adjacent to occupied or potentially suitable native habitats, or fields adjacent to CRP managed specifically for target species.
Contiguity to other grasslands–fields within context of large blocks (2,560 acres) of native grasslands and/or CRP, or fields bordering native grasslands and/or CRP on at least one side.

Cover: For new plantings, establish a stand of a minimum of 6 native grasses, 7 native forbs, and no shrubs in the following proportions: grasses 70-90%, and forbs 10-30%. The following grasses should be selected in the recommended proportions: Blue grama 50-70%, Western Wheatgrass 10-20%, Buffalograss 5-15%, Galleta 5-15% (south of I-70 only), Sand Dropseed 0-5%, Bottlebrush Squirreltail 0-5%, Needle and Thread 0-5%, Sun Sedge 0-5%, Alkali Sacaton 0-5% (alkali soils only), Inland Saltgrass 0-5% (alkali soils only). The following forbs are acceptable: American Vetch, Purple Prairie Clover, Scarlet Globemallow, Dotted Gayfeather, Blanketflower, Hairy Goldenaster, Louisiana Sagewort, Prairie Sunflower, and Upright Prairie Coneflower. Many other forbs can be substituted or added to these recommendations.

Management: Manage for a patchy structure (mixture of medium and short vegetation), and for high overall plant diversity. Plant diversity adds structure and food sources important to some nesting grassland birds.

Grazing: Graze to create structural heterogeneity. Do this by patch burning/grazing, or by grazing annually at low to moderate stocking rates (25-50% utilization) as a whole field. Integrate this with heavily grazed patches in areas that are not sensitive to erosion. Do not practice short-duration, high-intensity grazing, throughout the whole field, because this method creates homogeneity and requires extensive fencing and water development, which can be detrimental to the birds. It can also concentrate cattle and lead to nest trampling if before July 15. Grazing at low to moderate stocking rates during the nesting season is unlikely to negatively impact nesting songbirds.

Patch Burning: Burning in patches by itself or combined with grazing can create a heterogeneous stand. Burning can attract special species like Mountain Plover.

Trees: Eliminate all trees from CRP fields and prevent from re-invading.

2) Greater Prairie Chicken

Priority Species: Greater Prairie Chicken, Cassin's Sparrow, Upland Sanpiper.

Target Areas: Within designated radius of current GRPC range, and within all remaining sand sage habitats north of I-70.

Target Lands:
Soils – sands, loamy sands, or sandy loams.
Minimum field size – 320 acres.
Contiguity to existing habitat –fields adjacent to occupied or potentially suitable native habitats, or fields adjacent to CRP managed specifically for target species.
Contiguity to other grasslands–fields within context of large blocks (2,560 acres) of native grasslands and/or CRP, or fields within 0-3km of native grasslands and/or CRP.

Cover: Plant a minimum of 7 species of native grasses, 4 native forbs, and Sand Sage in approximately the following proportions: grasses 60-80%, forbs 10-20%, shrubs 10-20%. Dominant grasses should include: Sand Bluestem, Prairie Sandreeed, Switchgrass, Indiangrass, and little bluestem; other natives may be added. Maxmillian Sunflower, purple prairie clover, prairie coneflower, and Illinois bundleflower are highly recommended native forbs. Alfalfa may be added to native forbs. Sand Cherry may be included as an additional shrub. Match vegetation to ecological site

Management: Manage for a patchy structure (mixture of tall, medium and short vegetation), for high overall plant diversity, and for forb abundance.

Grazing: Graze to provide structural heterogeneity. Do this by patch burning/grazing, or by grazing at low stocking rates as a whole field. Do not practice short-duration, high-intensity grazing, because this method creates homogeneity and requires extensive fencing and water development, which can be detrimental to the birds.

Patch Burning: Burning in patches by itself or combined with grazing can create a heterogeneous stand.

Forbs: eliminate herbicides, and inter-seed or establish food plots of native legumes and other native forbs to increase abundance using a no-till grain drill if possible. Remove standing dead material on locality first by mowing (outside of nesting season), burning, or grazing. Exclude livestock from food plots.

Trees: Eliminate all trees from CRP fields and prevent from re-invading.

Light Discing: may be a useful tool to reduce the standing dead material and accumulated plant litter to allow for effective inter-seeding or natural colonization of native forbs. Minimize excessive soil disturbance when using this practice, and do not use on sandy soils or in areas with noxious weed problems.

RR only

The Nature Conservancy of Colorado

Comments on the April 30, 2005 draft of the Republican River CREP Proposal

May 16, 2005

Introduction

The Colorado Chapter of The Nature Conservancy supports the development and deployment of a Conservation Reserve Enhancement Program for the Republican River Basin in northeastern Colorado. Specifically, TNC supports coordinating federal and non-federal resources to address specific conservation objectives in the Republican River Basin in a cost-effective manner, and improving water quality, erosion control and wildlife habitat related to agricultural use in the region. TNC believes that the proposed CREP is a unique opportunity to address important conservation goals within an agricultural context and can complement TNC's goals for the area as well as our management goals at the Fox Ranch, which straddles the Arikaree within the CREP area.

Conserving the ecological systems along the Arikaree River, in particular, is a high-priority conservation issue of both state and national significance because the Arikaree provides habitat for a several species of concern and examples of several ecosystems that are either highly threatened in the US or at the extremes of their ranges.

TNC's 2000 Arikaree River Site Conservation Plan identifies seven terrestrial and aquatic ecological systems or species assemblages as conservation priorities in the area. Each of these systems or assemblages is summarized at the end of these comments.

In sum, TNC supports and is willing to work with partners on the continued refinement of the April 30, 2005 draft of the proposed CREP. To advance the CREP, TNC believes that the following general and specific refinements to the draft will strengthen the proposal and deployment of a Republican River Basin CREP.

General Comments

Resource efficiency:

As outlined above, TNC analyses indicate that the Arikaree River exhibits good riparian and aquatic systems, whereas the North Fork of the Republican River offers only a good aquatic system and the South Fork systems are highly degraded. As such, greater conservation benefits could be attained under the CREP by placing an emphasis on retiring water rights in proximity to the Arikaree to preserve its relatively intact plant and animal communities rather than by attempting to restore riparian or aquatic communities along the North or South Forks of the Republican. TNC believes such a focus would be most cost effective in conserving the species in question for the long-term and is interested in discussing how to emphasize Arikaree conservation targets in the CREP.

TNC-NRCS Cooperation

TNC values its strong relationship with NRCS in CO and would like to explore opportunities to cooperate with NRCS on the Republican River CREP based on its existing relationship and the TNC-NRCS Memorandum of Understanding signed by Bruce Knight of NRCS and Steven McCormick of TNC during the summer of 2004 (see attached).

Opportunities to cooperate with NRCS appear to exist in regard to monitoring and evaluating the performance of conservation practices and plans on biological communities and invasive species. TNC would like to explore opportunities to cooperate in these areas under the CREP and in relationship to TNC's Fox Ranch on the Arikaree River. These activities could build on monitoring activities TNC already has in place or is planning relative to measurements of success for our efforts on the Arikaree.

Water Rights Retirement

TNC strongly supports the permanent retirement of groundwater rights and wells for irrigation through the CREP. To be effective, however, such retirements must be matched with a hard cap on permits for new wells in the area under the Republican River Compact settlement. Without such a cap, retiring wells is likely to have only a short-term impact on flows in the Republican River basin as pumping locations shift in the watershed.

Specific Comments

TNC would also like to draw attention to the following specific points in the draft under review:

- P. 3: TNC strongly supports the statement that "The Republican River CREP, under 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."
- P. 21: TNC strongly supports objective #5 "Restore and enhance over 30 miles of riparian habitat along the North Fork and South Fork of the Republican River and the main stem of the Arikaree." As noted above, TNC also respectfully suggests that the deployment of resources for restoration and enhancement of riparian habitat would be most effective in terms of cost and benefit to species and systems of concern if an emphasis was placed on:
  (1) the Arikaree River;
  (2) the sandy soils areas north of the Arikaree River that support sandsage prairie; and
  (3) the N. Fork of the Republican River.

  TNC would like to discuss with you how to place a focus on the resources on these priorities while maintaining equity in the allocation of resources within the CREP area.
- P. 24. TNC strongly supports the statement that "All enrolled CREP acres will require permanent water retirement and producers will relinquish water rights in perpetuity." Permanent retirement of water rights will support in-stream flows over the long-term, especially if coupled with a formal cap on new well permits.
- P. 24: For clarity, TNC requests the addition of the Arikaree River in column 1 of the table describing the proposed acres and the associated incentives for the project in addition to the N and S Forks of the Republican.
- P. 27: TNC is concerned that the allocation of acres by conservation practice in Table 12 is not proportional to the current or historic cover provided by different native plant

communities in the area. In order to ensure complementary plant communities are established in association with the important species assemblages and ecological systems that exist in the Republican River basin, TNC requests that:

(1) the CREP proposal describe diverse plant species mixes for each of the proposed conservation practices listed on page 24;
(2) the proposed conservation practice acreages are planned in proportion to ecological site descriptions and soil types that exist within the CREP area; and
(3) that a system is developed to ensure that, in aggregate, the total acres of each conservation practice approved under Republican River CREP contracts is proportional to ecological site descriptions and soil types within the CREP area.

TNC is eager to consult on how best to develop the specifics of the conservation practices and their proportional establishment on the landscape.

- P. 32: In order to ensure that CREP benefits for wildlife resources of state and national significance are adequately studied in response to the benefits of the CREP, TNC would like to engage in a dialog on how monitoring targets can be expanded beyond pheasants, greater prairie chickens, and bobwhite quail to include other conservation targets that TNC has identified as important in the Republican River basin. The following section outlines these conservation targets along the Arikaree River.

Arikaree River Conservation Targets and the Republican River CREP

The Nature Conservancy sees the Republican River CREP as a unique opportunity to meet multiple water and biodiversity conservation goals in the region. TNC has identified the Arikaree River, in particular, as an important example of a prairie river system with a relatively intact assemblage of plants and animals. The surrounding sandsage and loess prairies are also important conservation targets for TNC in the area. Together these communities comprise the Arikaree River Project, one of 12 priority conservation projects that TNC has in Colorado. The seven important systems and species assemblages that TNC focuses on in the Arikaree Project are summarized below to outline why the Arikaree River deserves special consideration in the design of the CREP.

Arikaree River Riparian

The Arikaree River riparian system is a plains riparian forest and wetlands complex which is located along the perennial stretch of the Arikaree River and tributaries. Fluvial processes have created a mosaic of diverse riparian systems including willow shrublands, tallgrass prairie, wet prairie and emergent wetlands. There are also two distinct age groups of cottonwood woodlands. Large areas of the riparian system consist of plains cottonwood and peachleaf willow with an understory of switchgrass and Indiangrass. A large population of beaver create pools along the river within the riparian area. Several state rare plant species occur, including Illinois bundleflower, watermeal, greater duckweed and giant bur-reed. The riparian system also provides habitat for Bell's vireo, a declining native bird. In total, there are 8 TNC conservation targets (7 plant communities and 1 animal) inhabiting the riparian system.

Sandsage Prairie

The sandsage prairie is a matrix community occurring on the eolian sand deposits on the north end of the Arickaree Site. The prairie, in moderate to good condition, is characterized by sandsage and prairie sandreed with varying amounts of needle-and-thread and sand bluestem grasses. While sandsage dominates the shrub layer, yucca, fringed sagebrush and prickly pear often occur in small quantities. The sandhill prairie provides the local recharge area for the perennial stretch of the Arickaree River. The greater prairie chicken inhabits this system. This

prairie system supports state rare plant species including little beadroot scurf pea and palm leafed scurf pea.

Arikaree River Aquatic
The aquatic system consists of the animal communities in and around the surface waters of the Arikaree River. This system supports a variety of fish communities and is home to the critically imperiled, river shiner. The brassy minnow, Plains orangethroated darter and suckermouth minnow are among the Colorado state threatened species supported by this system. Sufficient groundwater levels, baseflows and natural hydrologic processes, in general, must be maintained to support a viable habitat for the aquatic species. Nine animal species have been identified as TNC conservation targets in this system.

Loess Prairie Complex
The loess prairie system, located on the south side of the Arickaree River, is a high-quality loess (wind-deposited) mixed grass and shortgrass prairie mosaic. The prairie complex, comprised of blue grama, sideoats grama, little bluestem and buffalo grasses, is characterized by fine-textured soils. Small outcrops of the Ogallala Formation sandstone support cushion plant communities. Playa lakes exist within the shortgrass prairie. This system also supports the habitat for the globally vulnerable Arogos skipper as well as the more common burrowing owl and ferruginous hawk.

Declining Grassland Birds
Grassland bird populations are declining significantly throughout their ranges. While the specific causes are yet undetermined, it is likely that complex local, regional and/or national ecological processes may be contributing to population decline. The declining breeding bird species at the Arickaree River Site include Brewer's sparrow, Cassin's sparrow, grasshopper sparrow, lark sparrow, Swainson's hawk, upland sandpiper and Colorado's state bird, lark bunting. These migratory birds arrive in spring and summer and breed in the shortgrass prairie as well as in the sandsage shrublands. These species have different nesting preferences ranging from grazed shortgrass prairies to dense, bushy shrublands. Therefore, it is important to sustain a truly mixed mosaic of grasslands and shrublands to support all of these species.

Proghorn Antelope
The pronghorn, an endemic species to North America, once numbered in excess of 40 million in the early 1800's. Today, approximately 60,000 individuals reside in Colorado mainly in the northeastern part of the state (Rennicke 1990). At the Arickaree River Site, a small population of 125 individuals have been documented at Fox Ranch. The pronghorn, feeding on forbs in the summer and sagebrush shrubs in the winter, is an important herbivore on this site. Because it's home range can span from 165 ha to over 2000 ha, conservation of this species and the habitat that supports it should also be considered in ecoregional and multi-site planning efforts.

North Fork Republican River Aquatic
This ecosystem encompasses the areas in the North Fork of the Republican River. While the plant communities are no longer representative of the greater biodiversity on this site, several state threatened animal/fish species inhabit this aquatic system. The North Fork of the Republican River watershed has been significantly altered due to conversion to agriculture and a long history of groundwater withdrawal. However, the North Fork of the Republican River is still a restoration site for the Great Plains fishery. The native fish species within this fishery include: central stoneroller, fathead minnow, creek chub and white sucker (Scheurer & Fausch 2000). This aquatic system is also home to Colorado state threatened Plains orangethroated darter and brassy minnow.

KIT CARSON COUNTY

BOARD OF COUNTY COMMISSIONERS
KIT CARSON COUNTY
PO BOX 160

BURLINGTON CO 80807-0160

PH: 719-346-8139
FX: 719-346-7242

Jim Whitmore,
District 1 Commissioner
Loren Lambert,
District 2 Commissioner
John H. Nichols,
District 3 Commissioner

May 25, 2005

Republican River Water Conservation District
505 E. 8th Ave., Bldg A
PO Box 304
Yuma, CO 80759

R.R. only

To Whom It May Concern:

The Kit Carson Board of County Commissioners supports the efforts of the Republican River Water Conservation District to obtain federal funds through the United State Department of Agriculture for the purpose of encouraging some farmers in the Republican River Basing 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.

Sincerely,

Loren Lambert
Chairman

John Nichols
Commissioner

Jim Whitmore
Commissioners

PHILLIPS COUNTY COMMISSIONERS

221 S. INTEROCEAN
HOLYOKE, COLORADO 80734

JERRY BEAVERS
QUENTIN "BUD" BIESEMEIER
SUSAN E. ROLL

970-854-2454
FAX 970-854-3811

May 31, 2005

R.R. only

Mr. Stan Murphy
General Manager
Republican River Water Conservancy District
505 E. 8th Ave, Bldg. A
P O Box 304
Yuma, CO 80759

RE: Republican River Water Conservancy District CREP Application

Dear Mr. Murphy:

With the recent settlement over the Republican River Water Compact lawsuit, it is critical that eastern Colorado farmers have opportunities to economically consider permanent conversion of some of their irrigated acres to other uses.

The CREP program would provide valuable assistance in allowing that transition to occur on an orderly basis, while minimizing the impact on the local economy in eastern Colorado.

We would support the Republican River Water Conservancy District CREP application. The CREP approval will add a valuable tool for farmers to help meet the lawsuit requirements. It can also enhance our environment by encouraging water and soil conservation and wildlife habitat protection.

We would urge approval of the application.

Sincerely,

Susan Roll

Susan Roll, Chairman
Board of County Commissioners

PLAYA LAKES
JOINT VENTURE

103 East Simpson, Lafayette, Colorado 80026
P: 303.926.0777 F: 303.926.8102 www.pljv.org

June 6, 2005

Tim Davis
Colorado CREP Administrator
Colorado Division of Wildlife
621 Iris Drive
Sterling, Colorado 80751

R. R.

Mr. Davis,

The Playa Lakes Joint Venture (PLJV) extends its support and endorsement of Colorado's Republican River Conservation Reserve Enhancement Program. The PLJV is a partnership of federal and state wildlife and agriculture agencies, conservation groups, private industry and landowners dedicated to conserving playa wetlands and associated landscapes for the benefit of birds, other wildlife and people in the High Plains. The PLJV conservation region covers most of eastern Colorado, including Lincoln, Yuma, Kit Caron and Washington Counties which are part of this CREP.

The CREP incorporates several USDA Farm Bill practices endorsed by the PLJV such as CP23a. This practice restores hydrology and establishes native grass buffers around playa wetlands which protects them from sedimentation and improves their value for wildlife and capacity for groundwater recharge. Playas are the most numerous wetlands in the High Plains, totaling about 60,000 with about 2,500 in eastern Colorado. The playas are considered one of the most important wetland habitats for birds in the region and are the primary source of recharge for the Ogallala Aquifer.

This CREP will contribute to preserving playas in the High Plains and therefore has the PLJV's support.

Sincerely,

Bob McCready
PLJV Chairman

Y-W ELECTRIC ASSOCIATION, INC.

BOX Y • 250 MAIN AVENUE • AKRON • COLORADO 80720

(970) 345-2291 • 800-660-2291 • Fax (970) 345-2154 • www.ywelectric.coop

June 8, 2005

R. S.

To Whom It May Concern:

Y-W Electric Association Inc. is a rural electric cooperative serving Yuma and Washington Counties. We provide electric service to over 1200 irrigation wells in the Republican River Water Conservation District. Y-W Electric is vitally concerned about the programs adopted by the RRWCD to comply with the Republican River Compact as they will affect us directly as a provider of electric service to the irrigations wells. We are also concerned about the effect of the programs on the overall economy of our service territory.

Y-W Electric supports the proposal of the RRWCD to augment the Conservation Reserve Enhancement Program (CREP) to obtain compliance with the Republican River Compact. The CREP program along with funding from the RRWCD to target the most beneficial wells for compliance will minimize the economic effect on the area.

Sincerely,
Y-W Electric Association, Inc.

Terence J. Hall Jr.
General Manager

ROCKY MOUNTAIN BIRD OBSERVATORY

Conserving birds of the Rocky Mountains and Great Plains

CREP Proposal Review Committee
Colorado Department of Natural Resources
1313 Sherman St. Room 818
Denver, CO 80203

Dear CREP Proposal Review Committee Members:

On behalf of Rocky Mountain Bird Observatory I would like to express our support for the Colorado Division of Wildlife's High Plains and Republican River Conservation Reserve Enhancement Program proposals. Both projects will provide nesting and foraging habitat for several species of conservation concern including Greater Prairie-Chicken, Long-billed Curlew, Upland Sandpiper, Cassin's Sparrow, Grasshopper Sparrow, Lark Bunting, Short-eared Owl, and Northern Harrier. Grassland plantings in the proposals emphasize native species, which will not only benefit the native fauna, but have longer-term success since the flora is adapted to the area.

The proposals emphasize voluntary efforts to enhance habitat quality and meet multiple states' water requirements. They promote conservation while taking into consideration the economics of rural eastern Colorado. This approach will bring multiple benefits to the producers and wildlife that characterize eastern Colorado.

Sincerely,

Scott Gillihan
Executive Director
14500 Lark Bunting Lane
Brighton, CO 80603

Rocky Mountain Bird Observatory is a 501(c)(3) nonprofit organization dedicated to the conservation of Rocky Mountain and Great Plains birds and their habitats through research, monitoring, education, and outreach.

Grand Junction office:
337 25¾ Rd.
Grand Junction, CO 81503
970-241-4674

Main office:
14500 Lark Bunting Lane
Brighton, CO 80601
303-659-4348
www.rmbo.org

Fort Collins office:
1510 S. College Ave., Suite 300
Fort Collins, CO 80524
970-482-1707

Northeast Colorado RC&D

621 Iris Drive
Sterling, Colorado 80751

970-522-7440 ext 122 FAX: 970-522-3528

June 15, 2005

13.94

Tim Davis
Scott Richrath
Department of Natural Resources
1313 Sherman St. Room 818
Denver, CO 80203

Dear Tim and Scott:

Our organization supports the efforts of the Colorado Divisions of Wildlife and Water Resources, Republican River Water Conservation District, Pheasants Forever, and other partners to obtain federal funds through the United States Department of Agriculture for the purpose of encouraging some farmers in eastern Colorado to enroll in voluntary Conservation Reserve Enhancement Programs (CREP).

The two CREP proposals in Colorado's high plains will add a valuable tool for dryland and irrigation farmers to help them diversify their farming practices and enhance environmental conservation. We look forward to CREP implementation in the near future.

Sincerely,

Nellie Zion
Vice-President

BOARD OF COUNTY COMMISSIONERS

Dave Thomas
District 1

Dean Wingfield
District 2

Robin Wiley
District 3

Robert H. Dee
Commissioners Attorney

Linda Briggs
Administrator

June 15.2005

Tim Davis
Scott Richrath
Department of Natural Resources
1313 Sherman St. Room 818
Denver, CO 80203

Dear Tim and Scott:

We, The Yuma County Commissioners, support your efforts of the Colorado Division of Wildlife and Water Resources, Republican River Water Conservation District, Pheasants Forever, and other partners to obtain federal funds through the United States Department of Agriculture for the purpose of encouraging some farmers in Eastern Colorado to enroll in voluntary Conservation Reserve Enhancement Programs (CREP).

The two CREP proposals in Colorado's High Plains will add a valuable tool for dryland and irrigation farmers to help them diversify their farming practices while enhancing environmental conservation. We look forward to CREP implementation in the near future.

Sincerely,

Board of Yuma County Commissioners

Dean Wingfield, Chairman

Dave Thomas

Robin Wiley

COLORADO FARM BUREAU

9177 East Mineral Circle • Centennial, Colorado 80112 • (303) 749-7500 • FAX (303) 749-7703
Mailing Address: P.O. Box 5647, Denver, Colorado 80217
www.colofb.com

June 17, 2005

Tim J. Davis
Colorado Division of Wildlife
621 Iris Drive
Sterling, Colorado 80751

To Whom It May Concern:

The Colorado Farm Bureau, the state's largest agricultural organization, has carefully reviewed the High Plains Conservation Reserve Enhancement Program (CREP) proposal and believes the proposal merits funding. CFB urges you to support the funding of the High Plains CREP proposal.

Funding the High Plains CREP proposal would benefit producers and the natural resources of the High Plains region in many ways. It would improve water quality by reducing the amount of agricultural chemicals applied across the High Plains; increase soil moisture and reduce surface run off; reduce soil erosion and improve habitat for important economic game and non-game wildlife species by providing small parcels of permanent cover adjacent to environmentally friendly managed crop fields. This proposal also provides compensation to farmers who enroll in this program for permitting access for small game hunting. The proposal would boost the regional farm economy by providing producers with a new source of state and federal conservation incentives.

The Colorado Farm Bureau believes the High Plains CREP proposal, if funded, would benefit both agricultural producers and the natural resources in the region.

Once again, the Colorado Farm Bureau supports the High Plains CREP proposal.

Sincerely,

Dr. Alan Foutz
President

/jk

State Representative
DIANE HOPPE
P. O. Box 1174
Sterling, CO 80751
Home: 970-522-3237
Capitol: 303-866-3706
E-mail: diane.hoppe.house@state.co.us

COLORADO
HOUSE OF REPRESENTATIVES
STATE CAPITOL
DENVER
80203

Chairman:
Agriculture, Livestock, & Natural Resources Committee
Member:
Appropriations Committee
Business Affairs & Labor Committee

June 20, 2005

Tim Davis and Scott Richrath
Colorado Department of Natural Resources
1313 Sherman Street, Room 818
Denver, Colorado 80203

Dear Mr. Davis and Mr. Richrath:

Having reviewed the High Plains Conservation Reserve Enhancement Program (CREP) proposal, I support the efforts of the Colorado Division of Wildlife, the Division of Water Resources, the Republican River Water Conservation District, and others, to obtain federal funds through the U.S. Department of Agriculture for the purpose of encouraging some farmers in eastern Colorado to enroll in voluntary Conservation Reserve Enhancement Programs (CREP).

Funding the High Plains CREP proposal would benefit producers and the natural resources of the High Plains region in many ways. It would improve water quality by reducing the amount of agricultural chemicals applied across the High Plains; increase soil moisture and reduce surface run off; reduce soil erosion and improve habitat for important economic game and non-game wildlife species by providing small parcels of permanent cover adjacent to environmentally friendly managed crop fields. This proposal also provides compensation to farmers who enroll in this program for permitting access for small game hunting. The proposal would boost the regional farm economy by providing producers with a new source of state and federal conservation incentives. If funded, the High Plains CREP proposal would benefit both agricultural producers and the natural resources in the region.

It is my belief that CREP proposals in Colorado's High Plains will add valuable tools for dry-land and irrigation farmers to help them diversify their operations and also enhance environmental conservation.

Sincerely,

Diane Hoppe

Diane Hoppe
State Representative

June 21, 2005
10092 County Road 36
Yuma, Colorado 80759

Scott Richrath
Department of Natural Resources
1313 Sherman St. Room 818
Denver, CO 80203

Dear Mr. Richrath:

As producers of agricultural products, livestock as well as crops, we feel that the proposed Conservation Reserve Enhancement Program (CREP) for the Republican River Watershed in Colorado provides a viable answer to meet many of the provisions of the Republican River Compact as well as provides additional benefits to the environment through soil and water conservation. Other benefits include wildlife habitat and conservation of our precious natural resources.

The CREP program as proposed will allow for permanent retirement of irrigation wells thereby extending the life of the aquifer and will also encourage producers to place their marginal soils in permanent grass. We would encourage the agencies involved to establish an equitable rental rate based on the local rental rates within the locale of the property entering the program rather than establishing a watershed wide rate. Localized rental rates would encourage producers to participate based on a fair market value and would ensure equitable compensation for retirement of irrigated property under the CREP program

We look forward to CREP implementation in the near future. If we may be of assistance in any manner please feel free to contact us at 1-970-848-3415.

Sincerely yours,

Donald C. Brown

Sincerely yours,

Peggy E. Brown

United States Department of the Interior

FISH AND WILDLIFE SERVICE
COLORADO PARTNERS FOR FISH AND WILDLIFE
755 PARFET STREET, ROOM 361
LAKEWOOD, COLORADO 80215
303-275-2435 Fax: 303-275-2371

June 27, 2005

Mr. Tim Davis
Colorado Division of Wildlife
621 Iris Drive
Sterling, Colorado 80751

Mr. Scott Richrath
Colorado Division of Water Resources
1313 Sherman Street; Room 818
Denver, Colorado 80203

Re: Colorado Conservation Reserve Enhancement Program Proposals

Mr. Richrath & Mr. Davis:

The U. S. Fish and Wildlife Service appreciated Mr. Davis's briefing and the opportunity to discuss both the High Plains and the Republican River Conservation Reserve Enhancement Program (CREP) proposals being prepared by the State of Colorado. While our final position must await the completion of National Environmental Policy Act and Endangered Species Act processes, we can offer these general comments.

Republican River CREP:

This proposal has the potential to significantly improve grassland, riparian ,and wetland habitats within the focus area. Permanent retirement of ground water wells and seeding crop land to native grasses will help slow the decline of the Ogallala Aquifer which will benefit native fish, native riparian and wetland wildlife, and aid in the conservation declining prairie wildlife. Improvements to ground and surface water quality should also result with reductions in the application of agro-chemicals and soil erosion. All these results will assist both producers and local communities in the long term.

High Plains CREP:

While not targeted specifically toward declining prairie species, we anticipate that this CREP will also yield habitat benefits for grassland birds and other native wildlife. The proposed changes in wheat harvest and seeding of native grass cover will reduce agricultural impacts on native wildlife and increase

the amount of grassland habitat. The reduction in the use agro-chemicals will provide an additional benefit for wildlife and the environment in general.

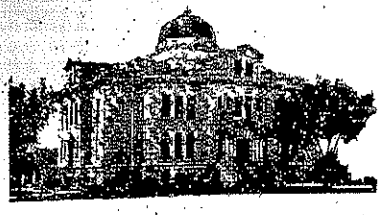
In summary, at this point in the process both proposals appear to be beneficial for Federal trust resources and native species in general. The Service looks forward to working with the State of Colorado and the U.S. Department of Agriculture as these proposals move towards approval.

Sincerely,

Susan Linner
Field Supervisor
Colorado Ecological Services Field Office

William Noonan
Coordinator
Colorado Partners for Fish and Wildlife Program

cc: File



LOGAN COUNTY COMMISSIONERS
315 Main Street, Suite 2 Sterling, CO 80751
(970) 522-0888 Fax (970) 522-4018 www.loganco.gov

June 28, 2005

Mr. Tim Davis, CREP Coordinator
Colorado Division of Wildlife
621 Iris Drive
Sterling, CO 80751

Dear Tim:

Logan County would like to take this opportunity to thank you for the information on the CREP program. We believe there are many benefits to such a program, such as decreased erosion and improved wildlife habitat that would be of great value to area producers who chose to voluntarily enroll in the program. Anytime there is a voluntary, incentive-based program, those that choose to participate can and will help many others who enjoy hunting small game or just helping provide the needed environment for survival and multiplication of the species.

We once again think this is a great program but because of this being a voluntary program we feel we should remain neutral on the issue. We like programs that are structured in such a manner that gives producers another tool to be good stewards of the land.

Sincerely,

BOARD OF COMMISSIONERS
LOGAN COUNTY, COLORADO

Gregory A. Etl, Chairman

Gene A. Meisner

Jack H. McLavey

/jc

STATE OF COLORADO

Colorado Department of Agriculture
www.ag.state.co.us

700 Kipling Street, Suite 4000
Lakewood, CO 80215-8000
(303) 239-4100
(303) 239-4125 FAX

Tim Davis
Scott Richrath
Department of Natural Resources
1313 Sherman St. Room 818
Denver, CO 80203

Dear Mr. Davis and Mr. Richrath:

It is my pleasure to lend the support of The Colorado Department of Agriculture to the effort to obtain Conservation Reserve Enhancement Program funds for eastern Colorado.

I applaud the cooperation the Colorado Divisions of Wildlife and Water Resources, The Republican River Water Conservation District, Pheasants Forever, and other partners to obtain these United States Department of Agriculture funds for the purpose of encouraging some farmers in eastern Colorado supplement ongoing conservation efforts through CREP.

The two CREP proposals in Colorado's high plains will add a valuable tool for dryland and irrigation farmers to help them diversify their farming practices while enhancing environmental conservation. I look forward to seeing CREP implementation in the near future.

Sincerely,

Don Ament
Commissioner

KEN SALAZAR
COLORADO

COMMITTEES:
AGRICULTURE, NUTRITION, AND FORESTRY
ENERGY AND NATURAL RESOURCES
VETERANS' AFFAIRS

United States Senate

WASHINGTON, DC 20510

WASHINGTON, DC:
702 HART SENATE OFFICE BUILDING
WASHINGTON, DC 20510
(202) 224-5852

COLORADO:
2300 15TH STREET
SUITE 450
DENVER, CO 80202
(303) 455-7600

http://www.salazar.senate.gov

June 29, 2005

Hal Simpson, State Engineer
Division of Water Resources
State of Colorado
1313 Sherman St.
Denver, CO 80203

R.E. Conservation Reserve Enhancement Program proposals

Dear Hal,

It is my understanding that the State of Colorado Division of Water Resources has filed an application for Conservation Reserve Enhancement Program funds for two proposals through the USDA, together with Pheasants Forever, the Republican River Water Conservation District, and various other groups. The conservation efforts initiated by these cooperating organizations stand to benefit my constituents, and I look forward to supporting their proposals.

Thank you for your consideration,

Ken Salazar

Ken Salazar
United States Senator

COLORADO FARM BUREAU

9177 East Mineral Circle • Centennial, Colorado 80112 • (303) 749-7500 • FAX (303) 749-7703
Mailing Address: P.O. Box 5647, Denver, Colorado 80217
www.colofb.com

Tim Davis
Scott Richrath
Department of Natural Resources
1313 Sherman St. Room 818
Denver, CO 80203

Dear Tim and Scott:

Colorado Farm Bureau, the state's largest general agricultural organization supports the efforts of the Colorado Division of Wildlife and the Colorado Division of Water Resources, Republican River Water Conservation District, Pheasants Forever, and other partners to obtain federal funds through the United States Department of Agriculture for the purpose of encouraging some farmers in eastern Colorado to enroll in voluntary Conservation Reserve Enhancement Programs (CREP).

Colorado Farm Bureau policy supports voluntary, incentive-based programs for the benefit of wildlife and water resources. The two CREP proposals in Colorado's high plains will add a valuable tool for dryland and irrigation farmers to help them diversify their farming practices while enhancing environmental conservation. We look forward to CREP implementation in the near future.

Sincerely,

Alan Foutz
President

/gdb

Dave Heineman
Governor

STATE OF NEBRASKA

DEPARTMENT OF NATURAL RESOURCES
Roger K. Patterson
Director

August 16, 2005

IN REPLY TO:

Hal Simpson
State Engineer
Colorado Division of Water Resources
1313 Sherman St. Room 818
Denver, CO 80203

Dear Mr. Simpson:

The Nebraska Department of Natural Resources supports the efforts of the Colorado Division of Water Resources, the Republican River Water Conservation District, and other partners to obtain federal funds through the United States Department of Agriculture for the purpose of encouraging some farmers in eastern Colorado to enroll in a voluntary Conservation Reserve Enhancement Program (CREP).

The CREP proposal in Colorado's high plains will add a valuable tool for irrigation farmers to help them diversify their farming practices while reducing aquifer and stream depletions.

Sincerely,

Ann Bleed

Ann Bleed
Deputy Director

cl\shared\ bleed

KANSAS

DEPARTMENT OF AGRICULTURE
ADRIAN J. POLANSKY, SECRETARY

KATHLEEN SEBELIUS, GOVERNOR

September 7, 2005

Hal Simpson
State Engineer
Colorado Division of Water Resources
1313 Sherman St. Room 818
Denver, CO 80203

Dear Hal:

Our agency supports the efforts of the Colorado Division of Water Resources, the Republican River Water Conservation District, and other partners to obtain federal funds through the United States Department of Agriculture for the purpose of encouraging some farmers in eastern Colorado to enroll in a voluntary Conservation Reserve Enhancement Program (CREP).

The CREP proposal in Colorado's high plains will add a valuable tool for irrigation farmers to help them diversify their farming practices while reducing aquifer and stream depletions. This should also assist the State of Colorado with efforts to comply with the Republican River Compact and the terms of the settlement of the recent litigation between the States of Kansas, Colorado and Nebraska. Consequently, this program may potentially benefit water users in the Republican River Basin of all three states.

Sincerely,

David L. Pope, PE
Chief Engineer

DLP/dlm

Division of Water Resources David L. Pope, Chief Engineer
109 SW 9th St., 2nd Floor Topeka, KS 66612-1283
Voice (785) 296-3717 Fax (785) 296-1176 http://www.accesskansas.org/kdu

musgrave.house.gov

Musgrave
Contact: Aaron Johnson 202-225-4676

Congresswoman Helps Save Republican River Water Conservation
Farmers in NE Colo avoid CREP funding from being cut off

Washington, Oct 28 -

This week, Congresswoman Marilyn Musgrave (CO-04) helped farmers in the Republican River Water Conservation District (RRWCD) of Northeast Colorado by preventing the elimination of conservation funding in the U.S. House of Representatives. Her work will likely help farmers avoid court mandates, and consequential economic deterrents, throughout Kit Carson, Lincoln, Logan, Philips, Sedgwick, Washington, and Yuma Counties.

The Congresswoman succeeded in preserving $176 million for the Conservation Reserve Program (CRP) and critical programs within that, such as Conservation Reserve Enhancement Program (CREP). These were cut by the Senate Agriculture Committee in the Agriculture Reconciliation Act of 2005.

"The bottom line is farmers throughout seven Colorado counties are depending on these federal funds in order to follow a well negotiated deal, without court interference, and prevent a downturn in the sensitive rural communities," said Musgrave "Our water resources along the Plains are precious and require a framework that balances the needs of farmers in Colorado as well as Nebraska and Kansas. I am pleased agriculture leaders in the House heeded my petitions and have kept the funding in place."

The federal funding is a critical resource that will allow the RRWCD to carry out its plan for compliance with the Colorado/Nebraska/Kansas Compact. Without federal funding, farmers in the region would likely face a court mandated resolution, which would not infuse money in the small rural economies like the current plan.

# # #

Marilyn Musgrave began serving in the United States House of Representatives in January 2003, and she represents Colorado's Fourth Congressional District. Musgrave is a member of the House Committees on Agriculture, Education and the Workforce, Resources, and Small Business. To learn more about Rep. Musgrave please visit her official website at http://www.house.gov/musgrave.

This page intentionally left blank

APPENDIX E: RELEVANT LAWS AND REGULATIONS

This page intentionally left blank

Federal Regulations

CEQ Implementation Regulations
(40 CFR 1500)

***Resource Area*:** General

A comprehensive listing of regulations for implementation of NEPA-related activities that includes: Purpose, Policy and Mandate; NEPA and Agency Planning; Environmental Impact Statement; Commenting; Predecision Referrals to the Council of Proposed Federal Actions Determined to be Environmentally Unsatisfactory; NEPA and Agency Decision-making; Other Requirements of NEPA; and Agency Compliance.

Clean Air Act of 1970
(42 U.S.C. 7401-7671)

***Resource Area*:** Air Quality

The Clean Air Act (CAA), originally adopted in 1955, was amended in 1970 to establish the core of the clean air program known today. The primary objective of CAA is to establish Federal standards for air pollutants from stationary and mobile sources and to work with States to regulate polluting emissions. The Act is designed to improve air quality in areas of the country which do not meet Federal standards and to prevent significant deterioration in areas where air quality exceeds those standards. The U.S. Environmental Protection Agency (EPA) administers the CAA and is responsible for developing and enforcing regulations to protect the general public from exposure to airborne contaminants that are known to be hazardous to human health.

Though there are few explicit references to wildlife or its habitats in the CAA, acid rain and other forms of air pollution affect wildlife and wildlife habitat, and the CAAs comprehensive provisions on emission standards, source permitting, ozone depletion, acid rain regulation, and other matters are intended to protect and improve air quality for wildlife as well as for human health. The CAA identifies air pollutants and sets primary and secondary standards for each. The primary standard protects human health, while the secondary standard is based on potential environmental and property damage.

Community Efforts along American Heritage Rivers
EO 13061

Resource Area: Water resources

Signed in 1997 by President Bill Clinton, this Executive Order aims to “to protect and restore rivers and their adjacent communities.”

Following the objectives set out in the American Rivers Initiative, natural resource and environmental protection, economic revitalization, and historic and cultural preservation, the EO requires that Federal agencies coordinate within the law and their missions to “preserve, protect, and restore rivers and their associated resources important to our history, culture, and natural heritage.”

The order also calls for cooperation between Federal, state, tribal and local governments to ensure that different opinions and needs are taken into account. Federal agencies must consult American Heritage River communities as to their goals and objectives, and "ensure that their actions have a positive effect on the natural, historic, economic, and cultural resources."

The order also sets up the process of American Heritage River nomination and required selection criteria.

Endangered Species Act of 1973

(7 CFR 355; 50 CFR 17, 23, 81, 222, 225-227, 402, 424, 450-453)

Resource Area: Biological Resources

The Endangered Species Act (ESA) passed in 1973, replaced laws passed in 1966 and 1969. The ESA has been reauthorized eight times, with significant amendments enacted in 1978, 1982, and 1988. The ultimate purpose of ESA is to save species of fish, wildlife, and plants from extinction, by conserving the ecosystems upon which threatened or endangered species depend and by conserving and recovering listed species.

Under law, a species may be listed as either threatened or endangered. Endangered means a species is in danger of becoming extinct throughout all or a significant portion of its natural range. Threatened means a species is likely to become endangered within the foreseeable future. All species of animals and plants, with the exception of pest insects, are eligible for listing under the ESA.

The U.S. Department of the Interior's Fish and Wildlife Service (FWS) and the U.S. Commerce's Departments National Marine Fisheries Service (NMFS) jointly administer the ESA. FWS administers terrestrial, fresh water species, and migratory birds, while NMFS administers marine species. Under the ESA all Federal agencies must consult with FWS and/or NMFS when any activity permitted, funded, or conducted by that agency may affect a listed species or designated critical habitat, or is likely to jeopardize proposed species or adversely modify proposed critical habitat. Critical habitat is defined by the ESA as areas that are essential to the conservation of listed species. Under Section 7 of the ESA, project areas must be checked against FWS and State listings of critical habitat and threatened and endangered species.

The ESA prohibits the following activities involving threatened and endangered species:

- Importing into or exporting from the U.S.;
- Taking (includes harassing, harming, pursuing, hunting, shooting, wounding, trapping, killing, capturing, or collecting) within the U.S. and its territorial seas;
- Taking on the high seas;
- Possessing, selling, delivering, carrying, transporting, or shipping any such species unlawfully taken within the U.S. or on the high seas;
- Delivering, receiving, carrying, transporting, or shipping in interstate or foreign commerce in the course of a commercial activity; and
- Selling or offering for sale in interstate or foreign commerce.

Farmland Protection Policy Act of 1981
7 U.S.C. 4201-4209, 7 CFR 658

Resource Area: Land use

The Farmland Protection Policy Act is meant to stop the conversion of farmland to nonagricultural landuse by, or relating to, Federal programs. These programs are required to coincide with state, local and tribal government objectives to protect farmland. It does not give the Federal government the right to regulate non-Federal land. Cropland not currently used to grow crops, such as forest land and pasture, is included in the Act.

Federal Agency assistance includes: Acquiring or disposing of land, providing financing or loans, managing property, providing technical assistance.

Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations (1994)
EO 12898

Resource Area: Environmental Justice

EO 12898 mandates that each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

EO 12898 created an Interagency Working Group on Environmental Justice (Working Group) to provide guidance to Federal agencies. The specific purpose of the Working Group is to:

- Provide guidance to Federal agencies on criteria for identifying disproportionately high and adverse human health or environmental effects on minority populations and low-income populations;
- Coordinate with, provide guidance to, and serve as a clearinghouse for each Federal agency as it develops an environmental justice strategy;
- Assist in coordinating research by, and stimulating cooperation among the EPA, Department of Health and Human Services, Department of Housing and Urban Development, and other agencies conducting research or other activities;
- Assist in coordinating data collection;
- Examine existing data and studies on environmental justice;
- Hold public meetings; and
- Develop interagency model projects on environmental justice that evidence cooperation among Federal agencies.

Federal Water Pollution Control Act (Clean Water Act) of 1972
(33 U.S.C. 1251-1376)

Resource Area: Water/Biological Resources

The Federal Water Pollution Control Act, popularly known as the Clean Water Act (CWA) was originally enacted in 1948. The Act was amended numerous times until it was reorganized and expanded in 1972. CWA is the principal law governing pollution of the Nation's surface waters; it does not deal with groundwater or water quantity issues. The CWA employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are aimed at the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters so that they can support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water. The EPA implements and enforces the CWA.

Prior to 1987 amendments, CWA programs were principally directed at point source pollution (wastes discharged from discrete and identifiable sources). Little attention was given to non-point source pollution, such as storm water runoff from agricultural lands, forests, construction sites, and urban areas. The 1987 amendments authorized measures to address non-point source pollution, which affects agricultural activities.

Provision of the CWA, which may affect agricultural activities, include:

- **Clean Lakes Program (Section 314)**, authorizing EPA grants to states for lake classification surveys, diagnostic/feasibility studies, and for projects to restore and protect lakes;
- **Nonpoint Source Pollution Program (Section 319)**, requires states to prepare reports and propose management plans for the control of non-point source pollution for approval by EPA, and encourages the development of plans on a watershed-by-watershed basis;
- **National Estuary Program (Section 320)** authorizes a state/Federal cooperative program to nominate estuaries of national significance and to develop and implement management plans to restore and maintain the biological and chemical integrity of estuarine waters;
- **National Pollutant Discharge Elimination System Permit Program (Section 402)**, controls point source discharge from treatment plants and industrial facilities (including large animal and poultry confinement operations); and
- **Dredge and Fill Permit Program (Section 404)** regulates dredging, filling, and other alterations of waters and wetlands, including wetlands owned by farmers. This program is typically administered by the U.S. Army Corps of Engineers, however, under an administrative agreement, the Natural Resources Conservation Service has authority to make wetland determinations pertaining to agricultural land.

Food Security Act of 1985
16 U.S.C. 3801-3862

Resource Area: Water resources

The Food Security Act discourages the conversion of wetland to farmland by discontinuing Federal farm program benefits to those landowners guilty of such practices. It has been amended twice since 1985. In 1990, the Food, Agriculture, Conservation and Trade Act enhanced the original act by making landowners ineligible for benefits in the year of and subsequent years after an infraction. The 1996 Farm Bill modified it to include the option of mitigation and enhancement credits. The Conservation Reserve

Program gives authorization to the Federal government, through contracts with agricultural landowners, to remove highly erodible land from production. The Wetland Reserve Program is a similar program that permanently or temporarily sets aside wetlands for protection and restoration.

Floodplain Management (1977)
EO 11988

Resource Area: Water Resources

EO 11988 requires Federal agencies to avoid contributing to adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development if a practical alternative exists.

In the course of fulfilling their respective authorities, Federal agencies "shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains."

Before proposing, conducting, supporting or allowing an action in a floodplain, each agency is to determine if planned activities will affect the floodplain and evaluate the potential effects of the intended actions on its functions. Agencies shall avoid sitting development in a floodplain "to avoid adverse effects and incompatible development in the floodplains,"

Each Federal agency is responsible for preparing implementing procedures for carrying out the provisions of the EO 11988. Federal agencies consult with FEMA concerning implementation of this EO.

National Environmental Policy Act of 1969
42 U.S.C 4321-4347

Resource Area: General

The National Environmental Policy Act (NEPA) requires all Federal agencies to:

- Assess the environmental impacts of major Federal projects, decisions such as issuing permits, spending Federal money, or actions on Federal lands;
- Consider the environmental impacts in making decisions; and
- Disclose the environmental impacts to the public.

Under NEPA, Federal agencies prepare three types of environmental reviews:

- Environmental Impact Statements (EIS) are prepared for proposed actions with the potential for significant impacts;
- Environmental Assessments (EAs) are prepared for proposed actions when the agency needs to study the issues before determining whether an EIS is necessary; and
- Categorical Exclusions for small, routine projects where the agency has a record that demonstrates that these types of projects characteristically do not result in significant environmental impacts.

National Historic Preservation Act of 1966
16 U.S.C. 470

Resource Area: Cultural Resources

The National Historic Preservation Act (NHPA) was enacted in 1966 and amended in 1970 and 1980. The Act created the Advisory Council on Historic Preservation (ACHP), an independent Federal agency, to advise the President and Congress on matters involving historic preservation. The ACHP is authorized to review and comment on all actions licensed by the Federal government which will have an effect on properties listed in the National Register of Historic Places (National Register), or eligible for such listing. The National Register is an inventory of the U.S. historic resources and is maintained by the National Park Service. The National Register includes districts, sites, buildings, structures, and objects significant to American history, architecture, archaeology and culture. The listed properties are not necessarily significant nationally rather most are significant primarily at the state or local level.

NHPA is composed of two major components, Section 106 and 110. Under section 106, Federal agencies are to consider the effects of their undertakings (including the issuance of permits, the expenditure of Federal funding, and Federal projects) on historic resources that are either eligible for listing or are listed on the National Register. The Federal agency must confer with the State Historic Preservation Officer (an official appointed in each state or territory to administer the National Historic Program) and the NHPA. Section 110 imposes another obligation on Federal agencies that own or control historic resources. Under this section, Federal agencies must consider historic preservation of historic resources as part of their management responsibilities.

Protection and Enhancement of Environmental Quality (1970)
EO 11514

Resource Area: General

Executive Order (EO) 11514 requires the Federal government to provide leadership in protecting and enhancing the quality of the Nation's environment. The EO directed Federal agencies to initiate measures needed to direct their policies, plans, and programs to meet national environmental goals. To achieve the national environmental goals, agencies were directed to:

- Monitor, evaluate, and control on a continuing basis their activities so as to protect and enhance the quality of the environment;
- Encourage timely public information processes to foster understanding of Federal plans and programs with environmental impacts;
- Insure that information regarding existing or potential environmental issues be shared and coordinated with other Federal agencies; and
- Comply with the regulations issued by the Council on Environmental Quality.

Protection of Wetlands
EO 11990 (DOT Order 5660.1A, 23 CFR 777)

Resource Area: Water Resources

President Jimmy Carter signed EO 11990 in 1977, “in order to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.”

This order requires Federal agencies to, “provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities.” These responsibilities include: “Acquiring, managing, and disposing of Federal lands and facilities”; “providing Federally undertaken, financed, or assisted construction and improvements”; and “conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.”

The order, in conjunction with NEPA, specifies that a Federal agency, “shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. In making this finding the head of the agency may take into account economic, environmental and other pertinent factors.”

Safe Drinking Water Act
42 U.S.C. 300F-300J-6, FAPG Subpart E

Resource Area: Water resources

The Safe Drinking Water Act was passed in 1974 to protect the Nation’s health by regulating the water supply. The act was amended in 1986 and 1996, and has jurisdiction over all public bodies of water. Private wells serving fewer than 25 individuals do not apply. The 1996 amendments added source water protection, operator training, funding for improvement and public education provisions. The act authorizes the EPA to set standards of water quality to prevent natural and man-made contaminants from affecting the public health.

USDA Department Regulation 9500-3

Resource Area: Land use

Created in 1983 this departmental regulation ensures compliance with USDA policy regarding land use practices and prevention of land conversion to uses that would degrade the Nation’s ecosystems, while recognizing state and local land use rights within their jurisdiction. The regulation reinforces the agencies responsibilities “to (a) assure that the United States retains a farm, range, and forest land base sufficient to produce adequate supplies, at reasonable production costs, of high-quality food, fiber, wood, and other agricultural products that may be needed, (b) assist individual landholders and State and local governments in defining and meeting needs for growth and development in such ways that the most productive farm, range, and forest lands are protected from unwarranted conversion to other uses; and (c) assure appropriate levels of environmental quality.”

Wild and Scenic Rivers Act
16 USC 1271-1287. 36 CFR 297

Resource Area: Water resources

The Wild and Scenic Rivers Act was approved by Congress in 1968 and established the National Wild and Scenic Rivers System and criteria to add rivers to the system. The Act preserves and protects these rivers and associated ecosystems. All Federal programs which affect or could affect these rivers or their associated ecosystems are covered. The Department of the Interior and the Department of Agriculture, along with state agencies, coordinate project proposals and reports. Later amendments have allowed for the installation and operation of control facilities for lamprey eel, and the management of non-Federal lands in the Columbia River Gorge Wilderness Area.

APPENDIX F: AGENCY CORRESPONDENCE

This page intentionally left blank

APPENDIX G: COPIES OF PUBLIC COMMENTS WITH AGENCY RESPONSES

This page intentionally left blank

APPENDIX H: SPECIES LISTS

This page intentionally left blank

CREP Area Wildlife Species

CREP Area Wildlife Species	
Common Name	**Scientific Name**
Mammals	
American Badger	*Taxidea taxus*
American Beaver	*Castor canadensis*
Big Brown Bat	*Eptesicus fuscus*
Black-tailed Jackrabbit	*Lepus californicus*
Black-tailed Prairie Dog	*Cynomys ludovicianus*
Bushy-tailed Woodrat	*Neotoma cinerea*
Common Muskrat	*Ondatra zibethicus*
Coyote	*Canis latrans*
Deer Mouse	*Peromyscus maniculatus*
Desert Cottontail	*Sylvilagus audobonii*
Eastern Cottontail	*Sylvilagus floridanus*
Fox Squirrel	*Sciurus niger*
Hispid Pocket Mouse	*Chaetopidos hispidus*
House Mouse	*Mus musculus*
Masked Shrew	*Sorex cinerus*
Meadow Vole	*Microtus pennsylvanicus*
Mule Deer	*Odocoileus hemionus*
Northern Grasshopper Mouse	*Onychomys leucogaster*
Ord's Kangaroo Rat	*Dipodomys ordii*
Plains Pocket Gopher	*Geomys bursarius*
Plains Pocket Mouse	*Perognathus flavescens*
Prairie Vole	*Microtus ochrogaster*
Pronghorn	*Antilocarpa Americana*
Raccoon	*Procyon lotor*
Red Fox	*Vulpes vulpes*
Silky Pocket Mouse	*Perognathus flavus*
Striped Skunk	*Mephitis mephitis*
Thirteen-lined Ground Squirrel	*Spermophilus tridecemlineatus*
Virginia Opossum	*Didelphis virginiana*
Western Harvest Mouse	*Reithrodontomys megalotis*
White-tailed Deer	*Odocoileus virginianus*
White-tailed Jackrabbit	*Lepus townsendii*
Birds	
American Crow	*Corvus brachyrhynchos*
American Kestrel	*Falco sparverius*
American Robin	*Turdus migratorus*
Baltimore Oriole	*Icterus galbula*
Bank Swallow	*Riparia riparia*
Barn Swallow	*Hirundo rustica*
Black-billed Magpie	*Pica pica*

CREP Area Wildlife Species	
Common Name	**Scientific Name**
Black-capped Chickadee	*Poecile atricapillus*
Bluejay	*Cyanocitta cristata*
Blue-winged Teal	*Anas discors*
Brown Thrasher	*Toxostoma rufum*
Brown-headed Cowbird	*Molothus ater*
Bullock's Oriole	*Icterus bullockii*
Canada Goose	*Branta canadensis*
Cassin's Sparrow	*Aimophila cassinii*
Chimney Swift	*Chaetura pelagica*
Cliff Swallow	*Petrochelidon pyrrhonota*
Common Grackle	*Quiscalus quiscala*
Common Nighthawk	*Chordeiles minor*
Common Yellowthroat	*Geothlypis trichas*
Eastern Bluebird	*Siala sialis*
Eastern Kingbird	*Tyrannus tyrannus*
European Starling	*Sturnus vulgaris*
Grasshopper Sparrow	*Ammodramus savannarum*
Great Blue Heron	*Ardea herodias*
Great Horned Owl	*Babo virginianus*
Greater Prairie-chicken	*Tympanuchus cupido*
Horned Lark	*Eremophila alpestris*
House Finch	*Carpodacus mexicanus*
House Sparrow	*Passer domesticus*
House Wren	*Troglodytes aedon*
Killdeer	*Charadius vociferous*
Lark Bunting	*Calamospiza melanocorys*
Lark Sparrow	*Chondestes grammacus*
Mallard	*Anas platyrhynchos*
Marsh Wren	*Cistothorus palustris*
Mourning Dove	*Zenaida macroura*
Northern Bobwhite	*Colinus virginianus*
Northern Flicker	*Colaptes auratus*
Northern Pintail	*Anas acuta*
Northern Rough-winged Swallow	*Steligidopteryx serripennis*
Orchard Oriole	*Icterus spurious*
Red-headed Woodpecker	*Melanerpes erythrocephalus*
Red-winged Blackbird	*Agelaius phoeniceus*
Ring-necked Pheasant	*Phasianus colchicus*
Rock Dove	*Columba livia*
Swainson's Hawk	*Buteo swainsoni*
Western Kingbird	*Tyrannus verticalis*
Western Meadowlark	*Sturnella neglecta*

CREP Area Wildlife Species	
Common Name	**Scientific Name**
Wood Duck	*Aix sponsa*
Yellow Warbler	*Dendroica petechia*
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*
Fish	
Brassy Minnow	*Hybognathus hankinsoni*
Fathead Minnow	*Pimephales promelas*
Orange-throat Darter	*Etheostoma spectibile*
Plains Minnow	*Hybognathus placitus*
Red Shiner	*Notropis lutrensis*
River Shiner	*Notropis blenniuis*
Sand Shiner	*Notropis stramineus*
Stonecat	*Noturus flavus*
Stoneroller	*Campostoma anomalum*
Suckermouth Minnow	*Phenacobius mirabilis*
Reptiles	
Fence Lizard	*Sceloporus undulatus*
Gopher Snake	*Pituophis catenifer*
Great Plains Skink	*Eumeces obsoletus*
Lesser Earless Lizard	*Holbrookia maculata*
Ornate Box Turtle	*Terrapene ornata*
Painted Turtle	*Chrysemys picta*
Plains Garter Snake	*Thamnophis radix*
Racer	*Coluber constrictor*
Six-lined Racerunner	*Cnemidophorus sexlineatus*
Snapping Turtle	*Chelydra serptina*
Spring Softshell	*Apalone spinifera*
Western Hognose Snake	*Heterodon nasicus*
Yellow Mud Turtle	*Kinosternon flavescens*
Amphibians	
Bullfrog	*Rana catesbeiana*
Great Plains Toad	*Bufo cognatus*
Plains Leopard Frog	*Rana blairi*
Plains Spadefoot	*Spea bombifrons*
Tiger Salamander	*Ambystoma tigrinum*
Western Chorus Frog	*Pseudacris tristeriata*
Woodhouse's Toad	*Bufo woodhousii*

CREP Area Protected Animal Species

CREP Area Protected Animal Species		
Common Name	**Scientific Name**	**Status**
Mammals		
Black-footed Ferret	*Mustela nigripes*	FE, SE
Black-tailed Prairie Dog	*Cynomys ludovicianus*	SC
Northern Pocket Gopher	*Thomomys talpoides macrotis*	SC
Northern River Otter	*Lontra canadensis*	ST
Swift Fox	*Vulpes velox*	SC
Birds		
American Peregrine Falcon	*Falco peregrinus anatum*	SC
Bald Eagle	*Haliaeetus leucocephalus*	FT, ST
Ferruginous Hawk	*Buteo regalis*	SC
Greater Sandhill Crane	*Grus Canadensis tabida*	SC
Long-billed Curlew	*Numenius americanus*	SC
Mountain Plover	*Charadrius montanus*	SC
Piping Plover	*Charadrius melodus circumcinctus*	FT, ST
Plains Sharp-tailed Grouse	*Tympanuchus phasianellus jamesii*	SE
Western Snowy Plover	*Charadrius alexandrinus*	SC
Whooping Crane	*Grus Americana*	FE, SE
Fish		
Brassy Minnow	*Hybognathus hankinsoni*	ST
Flathead Chub	*Playgobio gracilus*	SC
Plains Minnow	*Hybognathus placitus*	SE
Plains Orangethroat Darter	*Etheostoma specabile*	SC
Stonecat	*Noturus flavus*	SC
Suckermouth Minnow	*Phenacobius mirabilis*	SE
Reptiles		
Common Garter Snake	*Thamnophis sirtalis*	SC
Massasauga	*Sistrus catenatus*	SC
Midget Faded Rattlesnake	*Crotalus viridis concolor*	SC
Yellow Mud Turtle	*Kinosternon flavescens*	SC
Amphibians		
Northern Cricket Frog	*Acris crepitans*	SC
Northern Leopard Frog	*Rana pipiens*	SC

FT = Federally Threatened
FE = Federally Endangered
ST = State Threatened
SE = State Endangered
SC = State Special Concern

CREP Area Protected Plant Species

CREP Area Protected Plant Species		
Common Name	**Scientific Name**	**Status (Federal/State)**
Alcove Bog Orchid	*Limnorchis zothecina*	S1
Alcove Death Camas	*Anticlea vaginata*	S2
Alpine Braya	*Braya humilis*	S2
Altai Cottongrass	*Eriophorum altaicum*	S2
Apline Poppy	*Papaver kluanense*	S2
Arapien Stickleaf	*Nuttallia argillosa*	S2
Arctic Braya	*Braya glabella*	S1
Arkansas Canyon	*Nuttallia densa*	S2
Arkansas River	*Bolophyta tetraneauris*	S2
Arkansas Valley	*Oenothera harringtonii*	S2
Aztec Milkvetch	*Astragalus proximus*	S2
Bell's Twinpod	*Physaria bellii*	S2
Big Rough Fescue	*Festuca campestris*	S1
Black Spleenwort	*Asplenium andewsii*	S1
Botrychium Lineare	*Botrychium lineare*	S2
Brandegee Milkvetch	*Astragalus brandegei*	S1S2
Brandegee Wild	*Eriogonum brandegei*	S1S2
Bristle-stalk Sedge	*Carex leptalea*	S1
Canadian River Spiny	*Herrickia horrida*	S1
Canyonlands Aletes	*Aletes latilobus*	S1
Carbon Cryptanth	*Oreocarya mensana*	S1
Clawless Draba	*Draba exunguiculata*	S2
Clay-loving Wild	*Eriogonum pelinphilum*	E/S2
Cliff-palace Milkvetch	*Astragalus deterior*	S2
Colorado Butterfly Plant	*Gaura neomexicana* ssp.	T/S1
Colorado Desert-parsley	*Lomatium concinnum*	S2
Colorado Wild	*Eriogonum coloradense*	S2
Colorado Tansy-aster	*Machaeranthera coloradoensis*	S2
Cronquist Milkvetch	*Astragalus cronquistii*	S2
Debeque Milkvetch	*Astragalus debequaeus*	S2
DeBeque Phacelia	*Phacelia submutica*	C/S2
Debris Milkvetch	*Astragalus detritalis*	S2
Degener Breadstongue	*Penstemon degeneri*	S2
Draba Weberi	*Draba weberi*	S1

CREP Area Protected Plant Species		
Common Name	**Scientific Name**	**Status (Federal/State)**
Duchesne Milkvetch	*Astragalus duchesnensis*	S1S2
Dudley Bluff's	*Lesquerella congesta*	T/S1
Dwarf Hawksbeard	*Askellia nana*	S2
Dwarf Milkweed	*Asclepias uncialis*	S1S2
Dwarf Rattlesnake-	*Goodyera repens*	S2
Eastwood Monkey-	*Mimulus eastwoodiae*	S1S2
Ebony Spleenwort	*Asplenium platyneuron*	S1
Eerron Milkvetch	*Astragalus musiniensis*	S1
FisherTowers Milkvetch	*Astragalus piscator*	S1
Giant Helleborine	*Epipactis gigantea*	S2
Gibben's Beardtongue	*Penstemon gibbensii*	S1
Globe Gilia	*Ipomopsis globularis*	S2
Golden Columbine	*Aquilegia chrysantha*	S1S2
Graham Beardtongue	*Penstemon grahamii*	S2
Grand Buckwheat	*Eriogonum contortum*	S2
Grand Junction	*Astragalus linifolius*	S2
Gray's Peak Whitlow-	*Draba grayana*	S2
Green Sedge	*Carex viridula*	S1
Greenland Primrose	*Primula egaliksensis*	S2
Gunnison Milkvetch	*Astragalus anisus*	S2
Hall Fescue	*Festuca hallii*	S1
Hamiliton Milkvetch	*Astragalus lonchocarpus*	S1
Kachina Daisy	*Erigeron kachinensis*	S1
Knowlton Cactus	*Pediocactus knowltonii*	E/S1
Kotzebue Grass-of-	*Parnassia kotzebuei*	S2
Leadville Milkvetch	*Astragalus molybdenus*	S2
Ligulate Feverfew	*Bolophyta ligulata*	S2
Lime-loving Willow	*Salix lanata*	S1
Little Bulrush	*Trighophorum pumilum*	S1
Little Penstemon	*Penstemon breviculus*	S2
Livid Sedge	*Carex livida*	S1
Low Blueberry Willow	*Salix myrtillifolia*	S1
Low Northern Sedge	*Carex concinna*	S1
Mancos Milkvetch	*Astragalus humillimus*	E/S1
Mancos Saltbrush	*Proatriplex pleiantha*	S1
Mesa Verde Cactus	*Sclerocactus mesae-verdae*	T/S2
Mesa Verde Stickseed	*Hackelia gracilenta*	S2
Middle Park Penstemon	*Penstemon cyathophorus*	S2

CREP Area Protected Plant Species		
Common Name	**Scientific Name**	**Status (Federal/State)**
Mountain Bladder Fern	*Cystopteris montana*	S1
Mountain Clover	*Trifolium andinum*	S1
Nagoon Berry	*Cylactis arctica*	S1
Narrow-leaf Evening	*Oenothera acutissima*	S2
Narrow-stem Gilia	*Gilia stenothyrsa*	S1
Nelson Milkvetch	*Astragalus nelsonianus*	S1
North Park Phacelia	*Phacelia formosula*	E/S1
Northern Rockcress	*Draba borealis*	S2
Northern Twayblade	*LIstera borealis*	S2
Osterhout Cryptanth	*Oreocarya osterhoutii*	S1S2
Osterhout Milkvetch	*Astragalus osterhoutii*	E/S1
Ownbey Thistle	*Cirsium ownbeyi*	S2
Pagosa Bladderpod	*Lesquerella pruinosa*	S2
Pagosa Gilia	*Ipomopsis polyantha*	S1
Pale Blue-eyed Grass	*Sisyrinchium pallidum*	S2
Pale Moonwort	*Botrychium pallidum*	S2
Parachute Penstemon	*Penstemon debilis*	C/S1
Park Rockcress	*Boechera fernaldiana*	S2
Payson Lupine	*Lupinus crassus*	S2
Peck Sedge	*Carex peckii*	S1
Penland Alpine Fen	*Eutrema edwardsii* ssp. *penlandii*	T/S1S2
Penland Beardtongue	*Penstemon penlandii*	E/S1
Piceance Twinpod	*Physaria obcordata*	T/S2
Pictureleaf Wintergreen	*Pyrola picta*	S2
Pikes Peak Spring	*Oreoxis humilis*	S1
Plains Ragweed	*Ambrosia linearis*	S2
Porter Feathergrass	*Ptilagrostis porteri*	S2
Prairie Moonwort	*Botrychium campestre*	S1
Prairie Violet	*Viola pedatifida*	S2
Pueblo Goldenweed	*Oonopsis puebloensis*	S1/S2
Rabbit Ears Gilia	*Ipomopsis aggregata*	S1S2
Reflected Moonwort	*Botrychium echo*	S2
Ripley Milkvetch	*Astragalus ripleyi*	S2
Rockcress Draba	*Draba globosa*	S1
Rock-loving Aletes	*Aletes lithophilus*	S2
Rocky Mountain	*Potentilla rupincola*	S2
Tollins Cryptanth	*Oreocarya rollinsii*	S2
Round-leaf Four-o'clock	*Oxybaphus rotundifolius*	S1S2
Roundleaf Sundew	*Drosera rotundifolia*	S2

CREP Area Protected Plant Species		
Common Name	**Scientific Name**	**Status (Federal/State)**
Salt-lick Mustard	*Thellungiella salsuginea*	S1
San Rafael Milkvetch	*Astragalus rafaelensis*	S1
Sandhill Goosefoot	*Chenopodium cycloides*	S1
Sandstone Milkvetch	*Astragalus sesquiflorus*	S1
Schmoll Milkvetch	*Astragalus schmolliae*	S1
Sea Pink	*Armenia maritime* spp. *sibiviea*	S1
Selkirk Violet	*VIola selkirkii*	S1
Silver WIllow	*Salix candida*	S2
Single-head	*Oonopsis foliosa*	S2
Skiff Milkvetch	*Astragalus microcymbus*	S1
Sleeping Ute Milkvetch	*Astragalus tortipes*	C/S1
Slender Cottongrass	*Eriophorum gracile*	S2
Slender-flower Sedge	*Carex tenuiflora*	S1
Smith Whitlow-grass	*Draba smithii*	S2
Snow Grass	*Phippsia algida*	S2
Southern Maiden-hair	*Adiantum capillus-veneris*	S2
Tall Cryptanth	*Oreocarya elata*	S2
Tufted Cryptanth	*Oreocarya caespitosa*	S2
Tundra Buttercup	*Ranunculus gelidus* ssp. *grayi*	S2
Uinta Basin Hookless	*Sclerocactus glaucus*	T
Uinta Basin Spring-	*Cymopterus duchesnensis*	S1
Utah Bladder Fern	*Cystopteris utahensis*	S1
Utah Gentian	*Gentianella tortuosa*	S1
Ute Ladie's-tresses	*Spiranthes diluvialis*	S2
Weber Monkey-flower	*Mimulus gemmiparus*	S2
Weber Saussurea	*Saussurea weberi*	S2
White Adder's-mouth	*Malaxis monophyllos* ssp.	S1
White River Penstemon	*Penstemon scariosus* var.	S1
Wilken Fleabane	*Erigeron wilkenii*	S1
Woodside Buckwheat	*Eriogonum tumulosum*	S2
Wooly Fleabane	*Erigeron lanatus*	S1
Wright's Cliff-brake	*Pellaea wrightiana*	S2
Wyoming Feverfew	*Bolophyta alpina*	S1
Yellow Lady's-slipper	*Cyperipedium calceolus L. ssp.*	S2

E – Federally endangered
T – Federally threatened
C – Federal candidate for listing

S1 – State critically imperiled (<5 occurences)
S2 – State imperiled (<20 occurences)