Monitoring and Evaluation Report
Lower Gunnison Unit

Colorado River Salinity Control Project
2012

USDA-NRCS
Delta and Montrose, Colorado

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EXECUTIVE SUMMARY
LOWER GUNNISON UNIT
2012

Hydro-Salinity -

- The project plan is to treat approximately **115,000 acres** [/1] with improved irrigation systems.
- To date **62,306 acres** [/2] have been treated with improved irrigation systems.
- The project plan is to reduce salt loading to the Colorado River system by **166,000 tons/year** of salt.
- In FY 2012, salt loading has been reduced an additional **2,720 tons/year** as a result of installed salinity reduction practices.
- The cumulative salt load reduction is **111,754 tons/year**, or 67 percent of the project goal.

[/1] Note: The original project plan was to treat 135,000 acres with improved irrigation systems. Due to urban development and other small acreage land-use changes, it is assumed the net acreage needing treatment under the USDA portion of the Salinity Control Program has been reduced by approximately 15 percent.

[/2] Note: The 62,306 acres include fields that have been treated a second time to a higher level of irrigation improvement and salt savings over the course of this salinity project.

Cost Effectiveness -

- The planned cost per ton of salt saved with FY 2012 contracts (one year) is **$94.75 /ton**. This figure is calculated as follows:

(FA + TA = Total Cost) X Amortization factor = Amortized cost
Amortized cost / Tons salt reduced = Cost/Ton
FA = Total dollars obligated in EQIP and Basin States/ Parallel Program (including wildlife)
Amortization for 2012 = 0.0668
TA = technical assistance cost: (FA x 0.67)

Wildlife Habitat Replacement -

- The habitat replacement goal is at 2% of the current irrigation improvement acres, or 2% of 62,306 acres irrigation improvement acres equals **1,246 acres** of habitat replacement developed or significantly enhanced.
- In Fiscal Year 2012, **131 acres** of replacement wetland and upland habitat were reported as applied.
- To date, a cumulative **1,008 acres** or **81%** of the current wildlife habitat replacement goal has been established.
- Additional efforts are being made through wildlife only sign-ups, with various conservation groups, and with other Federal and State agencies to accelerate the implementation of wildlife habitat enhancement projects.

Key Considerations and Conclusions –

- The 2013 salinity signup is currently similar to the 2012 signup. Continued economic recovery and outreach activities have contributed to the interest in program participation.
- The National Water Quality Initiative provided additional focus on overall water quality improvement in Delta County in the hydrologic unit that encompasses Fruitgrowers Reservoir. While participation has been modest to date, the primary practices addressed in water quality contracts were irrigation system improvements.
- The Colorado River Salinity Control Forum through the Lower Gunnison Salinity Study Team, authorized a study to identify barriers to program participation, and contracted URS Corporation to conduct the study.
- The new agreement between US Bureau of Reclamation (USBR) and the State of Colorado for the Basin States Program generated additional interest and resulted in the preapproval of several contracts, with additional applications still to be serviced.
- Interest in the USBR Salinity Basin Wide Program has significantly increased. As ditch and canal companies receive program funding and projects are completed, interest in on-farm improvements is also expected to rise.
- Interest in soil health is growing to support better crop quality and better utilization of nutrient and water resources. It is expected the salinity load reduction to the river and overall water quality will improve as conservation and management practices are implemented to address better soil health.
- There is a significant increase in applications in Montrose and Ouray Counties that involve various types of sprinkler systems, which is due in part, to the increased emphasis and outreach of the selenium task force and the soil health initiative.
- The completion of ditch mapping in Ouray County and the Bostwick Park area by the USBR funded technician will lead to more accurate salt loading information for irrigation companies in these areas. As a result, they will be in a better position to compete in the USBR's Basin Wide Program.
- For FY 2012, 131 acres of upland and wetland wildlife habitat were applied, and the cumulative total is at 1,008 acres of wildlife habitat replacement. The concurrent status is at 81% of the goaled acres based on 2 acres of habitat replacement for each 100 acres of irrigation system improvement.
- The planned acres of wildlife habitat for contracts written in FY 2012 was relatively low at 12.2 acres, however potential contract or planned wildlife acres for FY 2013 should be considerably higher. Acquisition of grants, partnering with other entities and use of matching funds from Basin States Program (BSP) for landowners not eligible for EQIP could potentially result in over 150 acres of contracted wildlife habitat planned.
- In 2007, when the NRCS and USFWS agreed to the 2 acre per 100 acres habitat replacement goal, the Lower Gunnison Unit was at 60 percent of the concurrent acreage replacement goal. Over the past 5 years additional emphasis has been placed on increasing the number and size of habitat replacement projects. The wildlife habitat replacement totals in 2010, 2011 and 2012 in the Lower Gunnison Unit increased each year respectively to 66%, 72% and 81% of the concurrent goaled acres. This trend is expected to continue into the future, so it is projected the Lower Gunnison Unit will be fully concurrent by FY 2019.
- A shift with respect to how we view the salinity program wildlife habitat mitigation efforts could be considered. A more comprehensive multiple resource approach on a broader landscape scale may have the potential to positively affect wildlife habitat mitigation accomplishments, by merging the positive habitat effects from cover crops, tillage, and other vegetative management practices into the wildlife habitat replacement efforts.

- The goal for the Colorado River Salinity Control Program is to replace wildlife values negatively impacted by irrigation improvements, and the impacted habitat will be replaced by habitat providing similar values for the wildlife species affected.
- In western Colorado many of the irrigated areas have relatively small land units, and the parcels that provide the opportunity to develop water enhanced habitats are often small in size. Thus many of the habitat projects are complex in planning and habitat enhancement options, and although they offer the opportunity to provide significant habitat improvements the private land habitat projects in the western irrigated valleys frequently provide relatively small acreages per project.
- To qualify as suitable habitat replacement, each project needs to develop or significantly enhance habitat values for the types of species whose habitats are negatively impacted by irrigation improvements for salinity control. To meet the habitat replacement goals in each project area a combination of habitat improvements on private lands, and on lands with a combined public and/or public-private partnership are being considered. The goal of expanding the replacement options are to find and fund a sufficient acreage of suitable habitat projects to meet program obligations, and to encourage habitat replacement projects with better connectivity and a longer-term life expectancy.
- Many of the wildlife habitat replacement projects take a period of time to fully develop and reach their full habitat potential. Continued follow-up with management support and habitat evaluations in the field are important to support the landowner in accomplishing their habitat goals, and to assure the reported program habitat replacement goals are being maintained.

HYDRO-SALINITY MONITORING AND EVALUATION, COLORADO

Introduction

The Water Quality Act of 1965 (Public Law 89-234), as amended by the Federal Water Pollution Control Act of 1972, mandated efforts to maintain water quality standards in the United States. Congress enacted the Colorado River Basin Salinity Control Act (PL 93-320) in June 1974. Title I of the Act addresses the United States' commitment to Mexico and provided means for the U.S. to comply with provisions of Minute 242. Title II of the Act created a water quality program for salinity control in the United States. Primary responsibility was assigned to the Secretary of Interior and the US Bureau of Reclamation (USBR). USDA was instructed to support USBR's program with its existing authorities.

The Environmental Protection Agency (EPA) promulgated a regulation in December, 1974, which established a basin wide salinity control policy for the Colorado River Basin and also established a water quality standards procedure requiring basin states to adopt and submit for approval to the EPA, standards for salinity, including numeric criteria and a plan of implementation. In 1984, PL 98-569 amended the Salinity Control Act, authorizing the USDA Colorado River Salinity Control Program. Congress appropriated funds to provide financial assistance through Long-Term Agreements administered by Agricultural Stabilization and Conservation Service (ASCS) with technical support from the Soil Conservation Service (SCS). PL 98-569, also required continuing technical assistance along with monitoring and evaluation to determine the effectiveness of measures applied.

In 1995, PL 103-354 reorganized several agencies of USDA, transforming SCS into the Natural Resources Conservation Service (NRCS) and ASCS into the Farm Services Agency (FSA). In 1996, the Federal Agricultural Improvement and Reform Act (PL 104-127) combined four existing programs, including the Colorado River Basin Salinity Control Program, into the Environmental Quality Incentives Program (EQIP). The Farm Security and Rural Investment Act of 2002 and Food, Conservation, and Energy Act of 2008 reauthorized and amended EQIP, continue opportunities for USDA funding of salinity control measures.

Colorado River Salinity Control

The USDA-Natural Resources Conservation Service (NRCS), formerly USDA-Soil Conservation Service (SCS), both herein referenced as NRCS, initiated a program to make a variety of irrigation improvements to reduce deep percolation and on-farm ditch seepage to reduce the salt load potential to the Colorado River. Salinity control projects were initiated in Colorado starting with Grand Valley Unit in 1979, Lower Gunnison Unit in 1988, McElmo Creek Unit in 1989, Mancos Valley in 2004, and Silt in 2005. The NRCS irrigation improvement work included piping or lining irrigation ditches and small laterals, and improving the on-farm irrigation systems. In 1982 the NRCS identified the need to establish an irrigation monitoring and evaluation program for Grand Valley to assess the effects to deep percolation and seepage from making the various irrigation improvements, and to assess economic impacts and wildlife habitat replacement activities.

Irrigation in the Colorado salinity control areas is characterized by mostly gravity-fed systems installed on heavy clayey soils or medium textured soils derived from or overlaying marine shale

formations, typically Mancos shale that is very saline. The intake rates of the soils are generally low to medium. Plentiful and inexpensive irrigation water coupled with the long irrigation set times, and typically abundant flow rates contribute to the potential salinity mobilization. The available irrigation water and lower efficiency irrigation systems leads to excess deep percolation loss of water and low application efficiencies. The excess water from deep percolation contacts the underlying Mancos shale and subsequently loads salt to the Colorado River. Deep percolation and ditch seepage are considered to be the primary indicators of the effectiveness of the irrigation application.

A variety of irrigation systems were evaluated including earthen ditches with earth feeder ditches, earthen ditches with siphon tubes, concrete ditches with siphon tubes, ported concrete ditches, pipeline to gated pipe, side roll sprinklers, and micro spray. Crops included alfalfa, corn, small grain, dry beans, orchards, grapes, onions, pasture, and vegetables. This monitoring of irrigation system performance took place through the Salinity Program period from 1984 through 2003. The monitoring of wildlife and economic impacts started with each project and continues throughout the life of the project.

The NRCS developed a Monitoring and Evaluation Plan to assess the effects of the Colorado River Basin Salinity Control Program being implemented, "Monitoring and Evaluation Plan, Colorado River Basin Salinity Control Program for Grand Valley Unit, Colorado and Uinta Basin Unit, Utah, July 1982." The long-range monitoring plan described uniform guidelines and procedures to assess the effectiveness of the NRCS program to reduce salt loading to the Colorado River, to determine the effects of the irrigation improvements on wildlife, and to identify the monetary benefits to the individual participants.

Colorado NRCS initiated irrigation monitoring in the Grand Valley Unit in 1984 and to a limited extent in the Lower Gunnison Unit in 1992 and the McElmo Unit in 1993. The irrigation monitoring was designed to assess deep percolation changes and estimate changes to the salt loading derived from irrigated agricultural lands. Those assessments provided a baseline of deep percolation characteristics on agricultural land, and have been used by NRCS to make management decisions related to salinity control projects. Colorado State University, Cooperative Extension took over the irrigation monitoring activities from 1999 through 2003 utilizing the NRCS equipment and similar sampling techniques. The NRCS also conducted selected economic analysis and wildlife habitat analysis in all of the project areas.

The irrigated monitoring sites were selected to represent the variety of conditions common in the salinity control units. The need was identified for each irrigation event to be monitored and evaluated throughout the irrigation season for each site. From the NRCS Monitoring and Evaluation Plan, "Data will be collected to determine the amount of irrigation water infiltrated into the soil." "For each site on-farm water budgets will be prepared for each irrigation event, starting with pre-plant or start of growing season until crop harvest. The most significant output from the water budget is deep percolation." The plan proposed water budget was, "…deep percolation equals the amount of inflow plus rainfall prior to or during the irrigation event, less surface runoff and the net irrigation requirement [expressed as the amount of water needed to bring the soils profile to field capacity]." Data was compiled for 289 site years of measured irrigation inflows, outflows, crop consumptive use, precipitation, and deep percolation.

The data indicate that the salinity projects in Colorado are typically achieving a deep percolation plus field ditch seepage reduction of at least 10 to 15 inches for each acre treated which meets or exceeds the deep percolation reduction estimated in the original project reports.

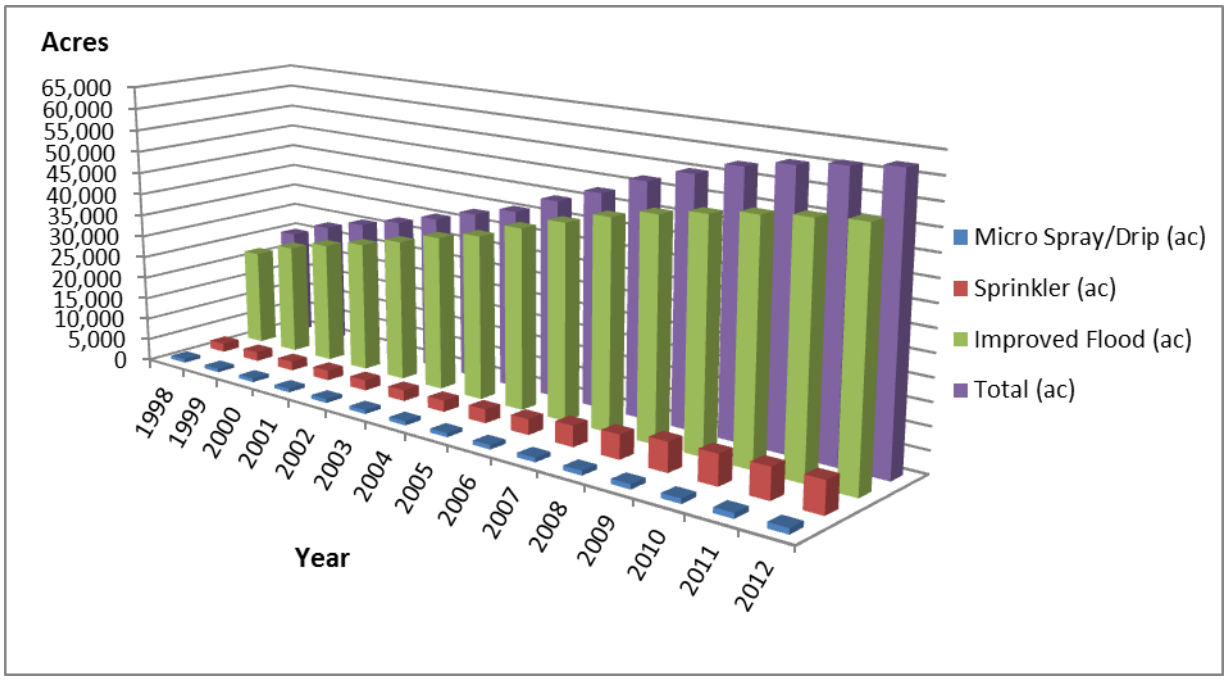
Areas with a greater conversion to sprinkler or micro spray will be at the 15 inch reduction and areas with predominantly flood irrigation will be at the 10 inch reduction. Areas that are converting from unimproved flood systems will have deep percolation plus seepage reductions in the 25 to 30 inch range. Areas that are converting very old flood irrigation systems with limited improvements, will most likely be somewhere between the higher values and the lower values, but probably closer to the 10 to 15 inch reduction.

Table 1 - NRCS Irrigation Application Efficiency Standards for Evaluation

TYPE OF IRRIGATION SYSTEM	% OF MONITORED EFFICIENCY
Open ditch	35%
Open ditch w/ siphon tubes	40%
Concrete ditch w/siphon tubes	50%
Gated pipe	50%
Underground pipe & Gated pipe	50%
Underground pipe/Gated pipe/Surge	55%
Center Pivot Sprinkler	90%
Big Gun Sprinkler	70%
Side roll Sprinkler	75%
Micro spray	90%
Drip Irrigation	95%

Note: Efficiencies listed are the NRCS planning standards for the various types of irrigation systems.

Graph 1 – Lower Gunnison Unit Cumulative Irrigation Systems Installed



IRRIGATION SYSTEMS APPLIED (acres)	FY2012	CUMULATIVE
Sprinkler	206	7,121
Improved Surface System	874	53,900
Drip System	102	1,285
TOTAL	**1,182**	**62,306**

Graph 1 and sub-set table display the cumulative acres of the various irrigation improvements in the Lower Gunnison project area. The earliest micro-spray systems were installed in the late 1980's, and there has been a relatively consistent, although small acreage of micro-spray irrigation systems installed through-out the life of the project.

The Lower Gunnison Unit typically has some areas with larger and more uniform field sizes where sprinkler system are becoming more popular, however many areas have relatively small and sometimes irregular field sizes that make the installation of field sprinkler systems problematic. In addition, the relatively flat topography in the areas with the larger field sizes limits the opportunity to build gravity pressure through pipeline delivery systems, so the sprinkler systems in this area typically require some type of pumped pressure to operate. Regardless, there has been an increase in the number of sprinkler systems installed on some of the larger and more uniform fields in more recent years. The ease of operation and uniformity of application make sprinklers a desirable option for many irrigators, although when the installation includes a regulating pond, pump installation, and the associated energy and maintenance

costs, it complicates the decision and increases both the installation and operating costs for the operator.

The number of vineyard and orchard operations in some of the upper areas in the Lower Gunnison unit account for most of the drip and micro-spray systems installed, and although they represent a significant number of systems, the fields are typically small and do not account for a large acreage. The systems perform very well from an irrigation application efficiency perspective, but are often relatively expensive on a per acre treatment basis and typically are more attractive for the high value crops.

In the project area the deep percolation reduction and subsequent salinity control is typically about 50 to 60% reduction for a well-managed improved flood system, about 75 to 85% reduction for a well-managed sprinkler system, and about 85 to 95% reduction for a well-managed drip or micro-spray system.

Graph 2 – Lower Gunnison Unit Cumulative On-Farm Salinity Load Reduced

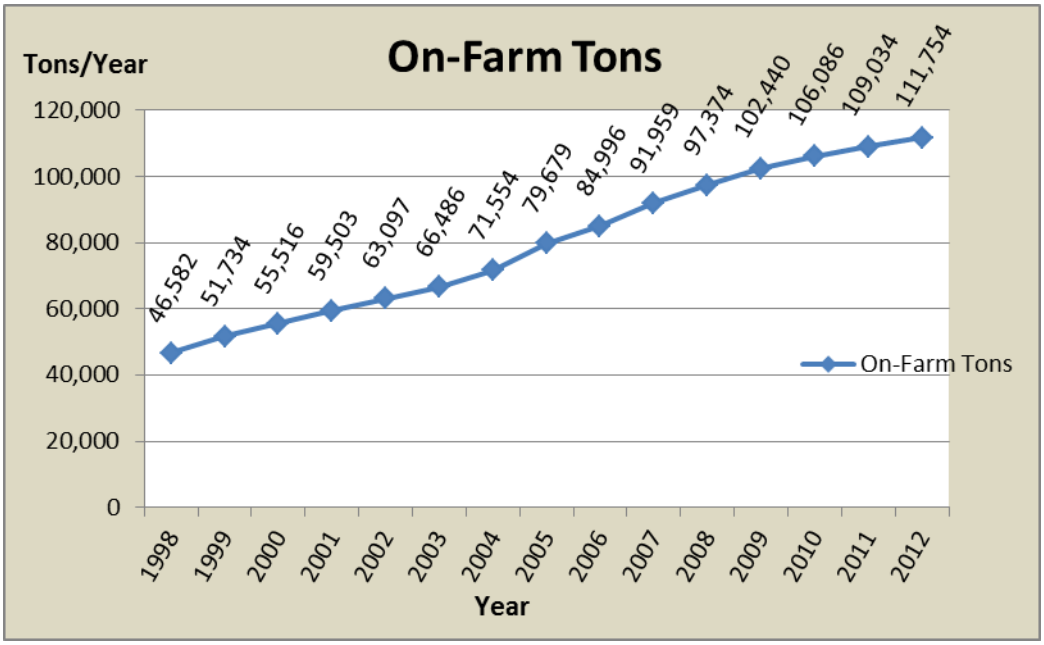


Table 2 - USGS Trend Analysis and Agency Reported Salinity Reduction

Unit	Trend Years	NRCS Project Start Year	NRCS Reported Reduction (tons/year) /1	BOR Reported Reduction (tons/year) /1	Total Predicted Reduction (tons/year) /1	Measured Reduction (tons/year)	Unclaimed Reduction (tons/year)
Grand Valley	1986 - 2003	1979	103,551	122,300	225,851	322,200	96,349
Lower Gunnison	1986 - 2003	1988	66,486	43,675	110,161	201,600	91,439
McElmo	1978 - 2006	1989	20,012	32,000	52,012	90,450 /2	38,438

/1 The ton/year number is the cumulative salt load reduction reported for the final trend analysis year for each study, either 2003 or 2006

/2 Includes a measured ton/year reduction plus projected ton/year salinity increase due to the introduction of the Dolores Project Water

USGS completed two salinity trend analysis reports for the gaging stations that include salt loading trends below three of the Colorado River Salinity Control Projects, and their analysis covered part of the salinity control implementation period. The measured salinity trends in the river exceeded the salinity control reductions claimed by the participating agencies for all three locations for the years represented. Certainly other management and land-use changes contributed to either increases and/or reductions to salt loading in the river, however the USGS trend analysis was corrected to account for the salt variations with changes in annual flow, and is intended to represent a flow adjusted annual change in salinity loading trends. The fact the trend reductions exceed the predicted loading reductions from the program helps support the irrigation improvement work is significantly reducing the annual load contribution from irrigation, and possibly the amount of improvement is somewhat greater than predicted.

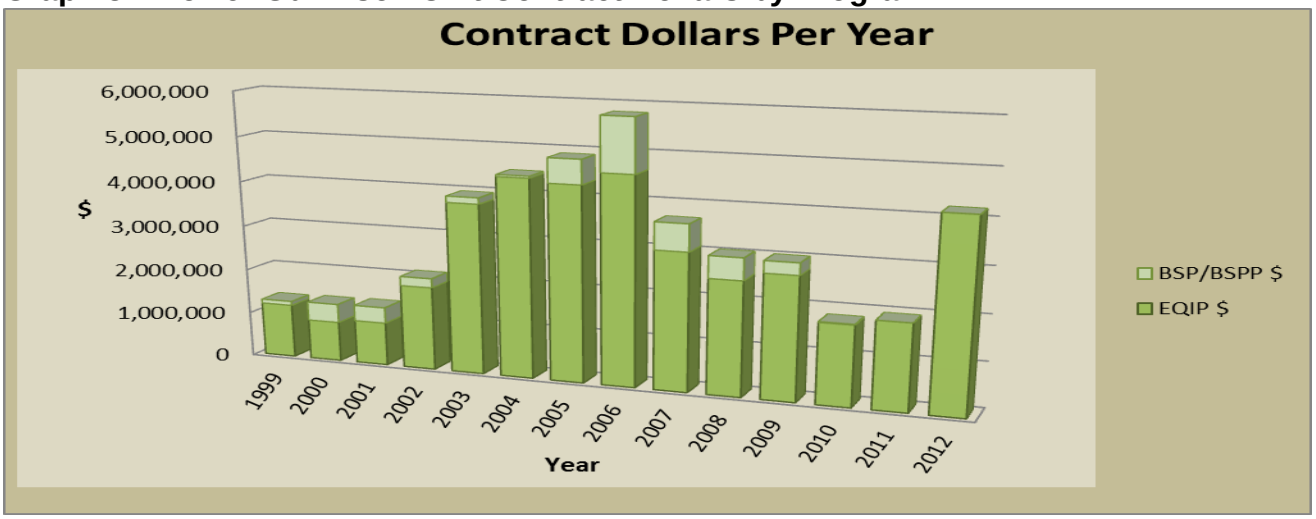
Table 2 References

"Salinity Trends in the Upper Colorado River Basin Upstream from the Grand Valley Salinity Control Unit, Colorado, 1986—2003", USGS Scientific Investigations Report 2007-5288, Kenneth J. Leib and Nancy J. Bauch, 2008.

"Characterization of Hydrology and Salinity in the Dolores Project Area, McElmo Creek Region, Southwest Colorado, Water Years 1978-2006", USGS Scientific Investigations Report 2010-5218, Rodney J. Richards and Kenneth J. Leib, 2011.

USBR Reported Salt Load Reductions from personal communication with Nicholas Williams, Environmental Engineer, US Bureau of Reclamation, Salt Lake City, Utah.

Graph 3 – Lower Gunnison Unit Contract Dollars by Program



Note: The funding programs represented include the NRCS Environmental Quality Incentives Program (EQIP), and the Bureau of Reclamation funded Basin States Program (BSP, formerly known as the Basin States Parallel Program BSPP).

Graph 3 displays the Environmental Quality Incentive Program (EQIP) and Basin States Program (BSP/BSPP) contract dollars per year from 1999 through 2012. The amounts varied significantly on an annual basis in part due to program allocations, the local economy, the cost of the installed systems, and the landowner's ability to cover their portion of the cost. The public funding was typically intended to cover approximately 75 percent of the installation cost, however many of the peripheral costs such as getting power to the site, possible non-irrigation equipment changes, additional management costs, the cost of learning and adapting new technologies, etc. were paid by the landowner and were not eligible for public cost-share.

Although the numbers fell within some of the previous annual contract dollar ranges, 2010 and 2011 were relatively low contract years. The recession, low hay prices, and higher input costs made farmers apprehensive about signing contracts for irrigation improvements. There is still the opportunity to make significant irrigation improvements and outreach efforts were increased. The estimated number of contracts was down by about two thirds during this period as a result of the recession. Due to the increased outreach and improving local agricultural economy, FY 2012 saw a significant increase in the number and dollar amount of contract applications funded and initial indications are there will be a similar interest for FY 2013.

In addition, the re-funding of the Basin States Program should allow for additional future contracts with landowner's who may not be EQIP eligible, and it is assumed the amount of both EQIP and BSP contracts will continue to increase[/1] as the local economy improves.

[/1] Note: The 2012 EQIP salinity sign-up increased significantly from 2010 and 2011, however the 2013 payment schedules changed significantly at the national level and it is uncertain how the changes to payment schedule might affect the rate of sign-up and participation for the 2013 FY.

Table 3 - On-Farm Programs for Funding Salinity Control

Program	Years
USDA Salinity Control Program (USDA-ACP)	1979 -1986
Colorado River Salinity Control Program (CRSCP)	1987 – 1995
Interim Environmental Quality Incentives Program (IEQIP)	1996
Environmental Quality Incentives Program (EQIP)	1997 -2012
Colorado River Basin States Program (BSP/BSPP)	1998 – 2012

The trend in the Lower Gunnison Unit is to continue the installation of new systems, and to upgrade and improve some of the previous improved flood systems. Improvements to technology and design offer additional salinity reduction by upgrading the more primitive flood systems to pipeline gated pipe with or without surge irrigation valves, or in some cases change from improved flood irrigation to either sprinkler or micro-spray/drip irrigation. The salinity reductions claimed in these situations are based on the incremental improvement offered by making the change from the current system to the improved system. Additionally the higher levels of irrigation system improvement typically have more management built into the system and the level of application efficiency has a higher assured performance.

The economic value to the community and adjacent states is significant. The projects offer a downstream benefit from reduced damages through the amortized cost per ton that typically covers the public cost of installation. In addition the landowners receive economic benefits from improved crop quality, better utilization of fertilizers, reduced irrigation labor costs, etc. The local community benefits though the economic turnover in the area from the public cost-share funds, the improved crop qualities, agricultural sustainability, etc.

2012 Highlights

Since the salinity program's inception in 1988, the Natural Resources Conservation Service (NRCS) in partnership with Conservation Districts have been applying improved irrigation systems and practices with cooperators in the Lower Gunnison Colorado River Salinity Control Program (CRSCP). Funding for the CRSCP has been primarily possible through the Environmental Quality Incentives Program (EQIP) and the Basin States Program (BSP). Within the past year former Basin States Parallel Program (BSPP) is transitioning to the new Basin States Program (BSP). This transition is gradually shifting the focus from on farm improved surface delivery systems to that of piping large scale main lateral off farm canal and ditch delivery systems. This has created a great deal of interest from group and irrigation companies in future participation in BSP. Also, there is a greater trend toward conversion of existing improved surface systems to highly efficient, advanced irrigation technology (AIT) and in particular Center Pivot sprinkler systems. Currently, this trend is primarily occurring in Delta County of the project area. With the advent of the new BSP and piping main stem delivery systems the conversion of existing improved surface on farm systems to AIT is expected to increase making it possible for irrigators to tap into pressurized gravity flow delivery systems.

FY 2012 Salinity Outreach Activities include:

- December 2011 - State Office news release submitted to the local paper regarding the EQIP Organic Producer Program application period.
- January 2012- Article about Crop Residue Benefits for Wildlife for the Service Center newsletter.
- January 2012 - IWM presentation to Olathe 4-H club.
- 2 EQIP informational meetings held @ Delta FO on January 11 and 12 to apprise agricultural producers of opportunities for program assistance to address salinity reduction, as well as other resource concerns.
- February 2012- News release from the State Office to the Daily Press about the NRCS available funding for Wetland Protection and Habitat Improvement projects in Colorado.
- February 2012- Article to the Daily Press about NRCS funding opportunities for EQIP Soil Health practices and sign-ups.
- March 2012 - News release about Financial Assistance for Colorado's Organic Producer's for the service Center newsletter.
- May 2012 - Article submitted to the Daily Press about application cutoff date for general EQIP.
- The outreach effort for the National Water Quality Initiative for the Fruitgrowers Reservoir HUC resulted in 5 contracts with irrigation system improvements. Outreach was a direct mailing (on 5/14) to approx. 130 landowners, as well as two news releases (5/16 and 5/30). A stakeholders meeting was held in Cedaredge on 5/17 to present the program, with about 8-10 potential participants attending.
- June 2012 - News release in Delta County Independent announcing an application cutoff date for EQIP funding consideration.
- September 2012 – Participated in an informational meeting about the Basin States Program
- September 2012 – Participated in training for the Colorado Decision Support System for water supplies and water management
- September 2012 – New release about the soil health initiative and funding opportunities which promote practices and additional funding to help compliment the salinity control activities in the Lower Gunnison Unit

Irrigation Water Management (IWM)

The 2012 year saw a large improvement in the Irrigation Water Management (IWM) program for the Delta/Montrose field offices. An IWM Specialist was hired in March in Delta. The IWM program was initiated at the beginning of the season through contacts with producers having IWM scheduled in their contracts on an incentive basis and working with them to establish an irrigation schedule using the irrigation tool box work sheet. Factors such as system type, soils, crops and available water were all taken into consideration. Soil moisture monitoring was evaluated in the field to establish a baseline for future management adjustments. In some situations the IWM Specialist would accompany the Conservation Planner in the field to accomplish this task. Producers were instructed on how and when to maintain records of their irrigation application rates and frequencies so this data could be evaluated against soil moisture monitoring results in order to make necessary adjustments to achieve optimum efficiencies. Most of these efficiencies and records were achieved in 2012, using a list of higher expectations for IWM certification, including more evapo-transpiration (ET) documentation and improved

records from each grower. Irrigation Water Management plans include ET checkbook analysis as appropriate and Irrigation Tool Box water management analysis for each grower, as well as improved record keeping. The IWM Specialist in Delta made more field visits than in 2011, and installed more water data loggers and used Infrared leaf sensors as part of irrigation scheduling support. The Delta IWM Specialist was able to continue through the completion of an entire growing season for the first time in several years. This continuity provided the opportunity for enhanced and consistent technical support for the local irrigators. In addition cooperation between the two field office IWM specialists is at a higher level than in the past and will continue into the future.

Delta Field Office – FY 2012 IWM activities:

Irrigation Water Management Summary:
Irrigation Water Management (IWM) plans were developed for all the FY 2012 salinity and National Water Quality Incentive (NWQI) contracts, including 28 contracts for 1,322 total acres of scheduled IWM to be applied as these salinity and NWQI contracts are implemented. Previously contracted Irrigation Water Management (IWM) follow-up was completed with 38 producers during the summer of 2012 on a total of 1,950 acres: 1,685 acres of hay/pasture, 201 acres of row crops, and 64 acres of specialty crops. The final year of scheduled IWM was reported as fully applied and complete on 25 of those producers for 1,360 acres. Additional IWM follow-up will be scheduled with the remaining 13 of these producers for the summer of 2013 with the addition of all new IWM plans scheduled to begin during that time. The Delta IWM specialist installed Hanson data loggers and watermark sensor sets for 6 different producers. The information from these loggers was used in conjunction with evapo-transpiration rates to help these high intensity users to schedule more efficient irrigation events.

Non-contracted IWM technical assistance was completed with 8 producers to assist them with water flow amount questions and providing general information about ET based irrigation scheduling.

During FY 2012 the Delta IWM specialist also participated in a number of education and outreach events, including: presentations to Colorado Division of Wildlife Technicians on the importance of water management efficiency, participated in a Colorado State University (CSU) drought study with local producers, participation in the establishment of a demonstration pasture plot at the Hotchkiss fair grounds, provided riparian trailer and river presentations to all delta county middle schools, and completed several presentations on drought year irrigation tactics for local producers.

Montrose Field Office – FY 2012 IWM activities:

Irrigation Water Management Summary:
Conservation District Irrigation Water Management (CD IWM) staff made 147 visits to 52 contract recipients and certified 56 IWM practices. Installed 10 Hanson Water Loggers and sets of watermark sensors, took 27 soil samples, 3 hay samples and performed nitrate uptake field trial with 4 growers. These 56 contracts represented 1,996 acres, of which 1,063 acres were hay, 209 acres of pasture, 558 acres of row crops, and 166 acres of specialty crops.
CD IWM Staff worked with 24 growers to develop IWM plans on newly funded contracts, of which 10 selected high intensity irrigation water management that specified including evapo-

transpiration and water balance for irrigation scheduling in their IWM practice. The Checkbook Method was used to schedule irrigations and Hanson data loggers were used to record soil moisture levels and fine-tune irrigations.

Conservation District Staff moved Shavano's mobile drip system and tape layer to Loma in the Grand Valley Unit for a drip irrigation demonstration project. CD IWM Staff cooperated with CSU Extension to get system set up and working for the demonstration.

*CD IWM staff made 30 visits to other irrigators for technical help, educational help and reference follow-ups referred by other agricultural entities.
*CD IWM staff attended training sessions with the Area Engineer and Area Irrigation Specialist to improve skills in various irrigation water management topics.
*CD IWM staff helped coordinate the 2012 and 2013 Uncompahgre Soil Health Conferences, including attending 11 Soil Health Team meetings and events, chairing 5 meetings, took minutes at 4 other meetings, and emailed minutes and/or notices for all 11 meetings.[17]
*CD IWM staff made or coordinated 31 presentations to various groups or classes, or judged events, including:
- Irrigation Producer Panel at 2012 Soil Health Conference
- Judged Gunnison Valley FFA District Speaking Contests
- Soil Health presentation to Uncompahgre Valley Association
- Water presentation to Olathe Ag Ed Natural Resources class
- Irrigation presentation to Montrose Ag Ed II class
- Drought Management Workshop to area producers
- Presented to 15 fourth grade classes at Natural Resource Fest.
- Eight Mancos Shale presentations in Montrose science classes.
- Demonstrated water conservation practices to over 100 youngsters on the NRCS water trailer at Montrose County Fair.

FY 2012 IRRIGATION WATER MANAGEMENT SUMMARY & OUTLOOK

As Advanced Irrigation Technology (AIT) gains acceptance by a greater number of producers, the use of soil infiltration tests will become increasingly important information for irrigation system operation and maintenance and proper water management. The IWM Specialists, through workshops, field days, tours, news articles and coordination with CSU Extension, irrigation equipment suppliers, Conservation District Boards, and irrigation water districts, can continue to bridge the gap between producers and the latest advancement of irrigation technology.

Uncertain economics will continue to be a concern for agriculture producers with the price of fuel, fertilizer, seed, equipment, technology, and the value of their commodity. Producers must become efficient consumers of water and energy in order to stay profitable. Efficient water application, reduced tillage, and other methods that incorporate efficient use of water and energy resources need to be advocated, publicized, and incorporated into project ranking considerations.

The guidance document developed in 2011 that outlines the steps, timeframes and appropriate action that needs to be taken in order to achieve successful IWM program delivery was followed. This guidance document included:

-A list of all producers applying IWM
-An initial field visit to establish baseline conditions
-IWM plan development

- Soil moisture levels
- Crops being produced and target consumptive use requirements
- Follow-up monitoring and recommendations for necessary adjustments
- Documentation of irrigation applications, frequency and adjustments in management to achieve improved efficiencies
- Certification based on documented measurable improvements in system operation efficiency.

The NRCS Mobile Irrigation Lab (MIL) is a valuable tool in providing effective follow-up and monitoring for acquiring data in order to make effective recommendations for improvements in management. Additional training is needed for the newly employed IWM specialists to fully utilize the tools in the Lab, such as the salinity mapping and analysis tools, and infiltrometers.

The MIL resource was utilized more efficiently in 2012 through:

-Prioritizing those clients and monitoring needs that would have the greatest benefit from its use.
-Scheduling the Lab by the month to better benefit both areas of the basin.

Project Area Future Outlook

The Lower Gunnison Unit is undergoing significant changes in landownership and the size of many of the operating units. Urban/rural small acreage units are more common and are changing the types of operators applying for program assistance. The smaller units still offer good opportunities for making irrigation delivery and system improvements for salinity control, but the operators often have full-time employment off-farm and higher levels of management and production may not be their main goal in making irrigation improvements.

Increasing interest in ditch replacement of off farm laterals and canals through the USBR Basin Wide Program will result in more opportunities for on-farm treatment and encourage participants to implement higher efficiency irrigation systems. As landowners see the chance to make improvements with assistance from EQIP and BSP, participation in these two programs is expected to increase as well.

IWM educational activities planned for 2013 include:

- A five-session course addressing water resource issues and irrigation efficiency, for all Delta County High School FFA students by the IWM Specialist in the Delta Field Office.
- Drought educational presentations to the Colorado Cattlewomens Association, and at CSU's Small Acreage Workshop.
- Continued presentations on Irrigation Water Management to community groups and organizations.
- Increased IWM technical assistance to non-program participants.

Effective coordination of outreach, planning and program implementation activities should be explored by the partner agencies to enhance program delivery.

The importance of maintaining financial incentives at levels that encourage program participation cannot be overemphasized. It is anticipated there may be emerging issues as applicants adjust to the financial uncertainties with a somewhat soft economy and the new national level payment schedules. It is unclear at this time what level of net compensation a participant will receive relative to their actual cost of financing and adapting to the improved irrigation systems. During periods of transition and change the rates of participation are often a little lower as the local community waits to see how it works for their neighbors.

The Lower Gunnison Unit has additional emphasis placed on making irrigation improvements based on the endangered species issues from excess selenium raised during the re-authorization of operations for the Aspinall Unit. The USBR was directed by the USFWS Biological Opinion to work the local water users and other agencies to develop a Selenium Management Program to accelerate the rate of irrigation system improvement to help reduce the risk of selenium loading and concentrations from interfering with the reproduction of endangered fish species and negatively affecting the recovery efforts. It is unclear at this time if this additional support and consequence will increase the rate and number of applications for financial assistance.

It is currently assumed the estimated 115,000 acres as adjusted due to changing landuse, is still an achievable number, but it is somewhat unclear how many years may be needed to reach the final goal. In addition, there are irrigation improvement being made without Federal participation and the acres on the ground that is actually treated may be a desirable inventory to complete. The NRCS initiated a field test during the spring of FY 2011 to determine the amount of staff time and resources it would take to complete a visual irrigation system inventory of the on-farm irrigation systems. In addition the Conservation District is working with funds from USBR and the Colorado River District to complete an inventory of the irrigation delivery systems not included in the USBR Uncompahgre Project inventory. These types of inventories are essential in determining the actual treatment needs, and to help prioritize and effectively target the areas still needing treatment.

Wildlife Monitoring and Evaluation

History

Salinity control work by the Natural Resources Conservation Service (NRCS) has gone through different funding programs during the duration of the Lower Gunnison salinity control project. The first was under the Colorado River Salinity Control program (CRSCP) from 1984-1995. The next program was the Interim Environmental Quality Incentives Program (I-EQIP) for fiscal year 1996. The current program, from 1997 through 2012 is the EQIP Program which includes matching funds from the Bureau of Reclamation delivered through the Basin States Program (BSP/BSPP).

The wildlife replacement activities during the initial program implementation in the original project areas were based on a process that specified the "**replacement of wildlife values foregone" and impacts to wildlife will be accounted for using a habitat value system**. To meet this specification the NRCS chose to use the Habitat Evaluation Procedure (HEP) developed by the U.S. Fish and Wildlife Service (USFWS) for tracking "on farm" changes in wildlife habitat values. Seven species models were chosen to represent different aspects of wildlife habitat in the unit that may be impacted by the project. Pheasant was chosen to represent habitat diversity, edge effect and edge habitat. Yellow warbler represents cottonwood-willow and other woody habitat associated with irrigation ditches and tail water. Mallard breeding habitat represents shallow wetlands and nesting habitat surrounding these wetlands. Mallard –winter habitat represents winter roosting areas (large water bodies and ice free water) and management of crop residues. Meadow vole represents sedge- rush wet meadows often associated with leaky ditches and inefficient irrigation. Marsh wren represents cattail- bulrush (robust emergent) wetlands and the screech owl is associated with groups of large deciduous trees. The models are custom models that underwent peer review and were developed explicitly for this project with the assistance of USFWS. Changes in wetland values are supposed to be tracked using the Avian Richness Evaluation Method (AREM) developed by Paul Adamus under contract with the Environmental Protection Agency (EPA). Refer to the 1994 Monitoring and Evaluation Plan for the Lower Gunnison Unit for details on monitoring methods used under the Colorado River Salinity Control Program.

Adjustments

It was determined the evaluation and accounting using the HEP process was an effective tool to measure the impacts and to determine the habitat replacement needs to offset the habitat values lost from making the irrigation improvements for salinity control. However, continuing the use of the full analysis process was consuming too much of the field Biologist's time and reduced their opportunities to promote good habitat replacement projects with willing landowners. In addition the initial program efforts looked to accomplish all of the replacement goals within the project areas and attempted to get cooperation with the replacement projects from each participating landowner. This approach created a scattering of small and disconnected projects and often poorly managed projects that were not really supplying either the quality or quantity of habitat necessary to meet program goals.

The NRCS and USFWS entered into discussions and developed correspondence to address the two primary issues. It was decided a desirable goal was to promote larger and more connected habitat projects, and to make sure the wetland projects were located in positions on

the landscape where wetlands made sense. It was important to position wetland and water enhanced habitat projects in areas with high water tables and along existing riparian corridors to avoid perched wetlands that could contribute to additional water quality problems and to utilize the existing water tables to assure the wetland project would be sustainable. In addition the protection of the riparian corridors for wildlife provided connected habitats advantageous to many of the affected species.

To accomplish this goal it was mutually agreed the developed replacement and enhancement projects would count towards meeting replacement goals whether they were within or outside of an official project area as long as salinity funds were used to cover the cost of the habitat replacement and enhancement, the project was within a reasonable proximity of a salinity project area, and the type of habitats supplied met similar habitat types to the ones affected by the salinity control irrigation improvements.

In addition the USFWS concurred with changing the HEP driven accounting process to a pre-determined replacement rate of 2 acres of habitat developed or significantly enhanced for each 100 acres or irrigation system improvement. This rate was based on the multi-year analysis from the HEP process for the Lower Gunnison and McElmo Units, and the agreed change also included the Mancos Valley Unit.

Under this agreement the Lower Gunnison Unit will be at 2 acres of habitat replaced or enhanced per 100 acres of irrigation system improvements per written concurrence from the US Fish and Wildlife Service in 2007.

Based on project reporting the NRCS has reached approximately 54% of the acreage treatment goal and approximately 67% of the projected salinity reduction goals in the Lower Gunnison Unit. The goal for each project area is to be concurrent, meaning the habitat replacement should be adequate to meet the replacement values for the applied irrigation system improvements in place. With 62,306 acres with irrigation treatment to date, at 2 acres of habitat per 100 acres of irrigation system treatment, the concurrent habitat replacement goal is 1,246 acres, see Table 3. With 1,008 acres of replacement wildlife habitat applied and in place to date, the Lower Gunnison Unit needs an additional 238 acres of habitat replacement to be concurrent [/1]. ***See "FY 2012 Wildlife Activities" on the following page for progress and actions.***

In addition, a key issue raised by the US Fish and Wildlife Service is the expectation the credited replacement acres must be on the ground and functioning as effective habitat when the salinity project is considered complete. Some loss of wildlife habitat will take place as operation and maintenance agreements expire and land uses change in the Lower Gunnison Unit. To account for the loss, it is likely NRCS will need to apply more habit replacement acres than the goaled amount. NRCS biologists will visit all habitat replacement projects every 3 years and adjust credited acres to what is actually on the ground and functioning. Acres lost for whatever reason will be removed from the credited replacement acres.

[/1]Depending on how many irrigated acres are ultimately treated for salinity control, it is estimated that the final habitat replacement goal will be between 1,400 and 2,300 acres.

Wildlife Monitoring and Evaluation:

Previous years M&E reports have addressed the history of methods used to measure wildlife habitat mitigation efforts for the Salinity Program in detail. These reports are available through NRCS's Colorado web site under the Monitoring and Evaluation Report, Lower Gunnison Unit, Colorado River Salinity Control Project (CRSCP).

The original "Salinity Control Act" states that there will be no net loss of wildlife habitat. The decision was to use a value system to measure impacts to water supported habitats and there can be a net decrease in acres as long as there is no net loss of wildlife habitat values. The habitat value multiplied by the number of acres of that habitat equals the total habitat values lost and/or gained.

Measuring habitat values on every project required a substantial amount of time. A statistical analysis of the habitat evaluation procedure was conducted to streamline the process of evaluating NRCS's habitat replacement efforts. Data from farms with and without wildlife habitat practices installed were used to extrapolate the number of acres with developed wildlife practices needed to meet the requirement of "no net loss of wildlife habitat values foregone". It was determined that if 25% of all Salinity Control Project contracts installed at least one wildlife habitat practice, habitat value replacement goals would be met. In 2007 there were concerns about the amount of time necessary to conduct an adequate and statistically accurate analysis, and it was jointly decided to base the habitat replacement goal on 2 acres of habitat per 100 acres of irrigation system improvement. The 2% figure is based in the habitat value analysis from field evaluations completed in the Grand Valley, Lower Gunnison and McElmo Creek Unit.

FY 2012 Wildlife Activities:

At the time the change was made to go to the 2% replacement amount in 2007, 24% of the salinity contracts included wildlife habitat practices. At that time the project was close to being on track with the replacement goals based on the percentage of contracts planning to install wildlife habitat. With the change in goals per the 2% agreement, there has been a lag time to meet the concurrent goaled acreage. Prior to 2007the wildlife acres were tracked, however the values lost and gained were a combination of habitat quality change and acres. Wildlife habitat values were tracked as the projects achieved a greater value than the wildlife habitat that was lost from the installation of irrigation system.

From 2007 to 2012, the number of acres with improved irrigation systems increased an average of 2,142 acres per year. To meet the 2 acres of habitat per 100 acres of irrigation treatment requires an average of 43 acres of habitat improvements installed per year. With the additional out-reach and focus on wildlife habitat improvement projects, the field offices have been averaging 78 acres per year of wildlife habitat installed over the same period of time between 2007 and 2012, which is helping gain the acres needed to be concurrent.

In 2007, when the NRCS and USFWS agreed to the 2 acre per 100 acres habitat replacement goal, the Lower Gunnison Unit was at 60 percent of the concurrent acreage replacement goal. Over the past 5 years additional emphasis has been placed on increasing the number and size of habitat replacement projects. The wildlife habitat replacement totals in 2010, 2011 and 2012 in the Lower Gunnison Unit increased each year respectively to 66%, 72% and 81% of the

concurrent goaled acres. This trend is expected to continue into the future, so it is projected the Lower Gunnison Unit will be fully concurrent by FY 2019.

The efforts of the Wildlife Biologists to increase use of program flexibility, focus on projects involving support from multiple wildlife partners, focus on larger more contiguous projects, and increased outreach and program management support are the primary reasons the unit has been making consistent gains in reaching the concurrent goals each of the past 5 years. Continued program support from management and partner agencies is essential to continuing these gains.

Future Wildlife Activities/Action:

The offices continue to work with partners on large contiguous blocks of land to improve wildlife habitat. However, because the impacts to wildlife habitats occur throughout the irrigated valleys, emphasis and priority will also continue with any willing landowner that has an eligible wildlife project. The scattered projects improve the juxtaposition of habitat within the farmed landscape.

For 2013 the salinity control project is working with the Colorado State Forest Service (CSFS) and the Shavano CD to acquire a Colorado Water Conservation Board (CWCB) invasive phreatophyte control program grant. The goal is to match these funds with EQIP and BSSP funds to restore riparian habitat along the Uncompahgre River. Delta County is exploring the potential to restore native woody vegetation to portions of the North Fork of the Gunnison River between Hotchkiss and Paonia, where removal of Russian olive and tamarisk has occurred through funding from grants provided by the National Wild Turkey Federation, Colorado Water Conservation Board, the Delta Conservation District, the Colorado River District, and the Conservation Center. Projects are also coordinated with the USFWS and their Partners for Fish & Wildlife program.

Inventory and assessment of installed projects is necessary to make sure the wildlife habitat is still on the ground and being managed properly. The follow-up also provides an opportunity to assist the landowner with proper management of the habitat. In addition recent aerial photography is used to evaluate the wildlife habitat. Selected projects are field checked to ground truth the installed practices and management.

Table 4 - Wildlife Habitat Replacement Table – Lower Gunnison

Habitat Replacement	Acres
Salinity Program Irrigated Acres Treated to Date	62,306
Habitat Replacement Goal @ 2 acres per 100 acres Irrigation Treatment	1,246
Habitat Replacement Acres Applied and Maintained through FY 2011	877
Habitat Replacement Acres Applied During FY 2012	131
Total Habitat Replacement Acres Through FY 2012	1,008
Remaining Acres to Meet Concurrent Habitat Replacement Goal	238
Remaining Acres Needed to Meet Full Project Replacement Goal [1/]	1,292

Note the rose colored boxes are negative or a deficit

[1/] Assume a full project implementation at 115,000 acres of irrigation treatment at 2.0 acres per 100 acres treated, for a total 2,300 acres of habitat replacement needed.

As displayed in Table 4, the Lower Gunnison Unit is currently 238 acres below the concurrent replacement needed. Efforts are being made working with other agencies, wildlife groups, and willing landowners to accelerate the rate of replacement to meet concurrent and future goals.

Table 5 – Wildlife Habitat Planned Versus Applied with Funded Contracts – Combined Delta and Montrose Field Offices – Lower Gunnison Unit

	Office	Combined Delta and Montrose Field Offices									
Program	Year	Wetland Habitat Planned (ac)	Cumulative Wetland Habitat Planned (ac)	Wetland Habitat Applied (ac)	Cumulative Wetland Habitat Applied (ac)	Cumul. Planned Wetland Applied (%)	Upland Habitat Planned (ac)	Cumulative Upland Habitat Planned (ac)	Upland Habitat Applied (ac)	Cumulative Upland Habitat Applied (ac)	Cumul. Planned Upland Applied (%)
CRSCP	1987-1995	200.3	**200.3**	126.5	**126.5**	63%	316.2	**316.2**	144.2	**144.2**	46%
IEQIP/EQIP	1996-2006	166.6	**166.6**	97.8	**97.8**	59%	562.1	**562.1**	329.4	**329.4**	59%
EQIP	2007	9.0	9.0	0.5	0.5	1/	63.8	63.8	40.1	40.1	1/
	2008	4.1	13.1	6.1	6.6	1/	20.5	84.3	28.9	69.0	1/
	2009	0.0	13.1	0.0	6.6	1/	116.5	200.8	0.3	69.3	1/
	2010	7.0	20.1	0.0	6.6	1/	57.6	258.4	0.0	69.3	1/
	2011	7.7	27.8	0.0	6.6	1/	25.1	283.5	0.0	69.3	1/
	2012 /2	0.7	**28.5**	0.0	**6.6**	1/	11.5	**295.0**	0.0	**69.3**	1/
BSP/BSPP	1997-2011	65.5	**65.5**	55.1	**55.1**	84%	184.7	**184.7**	178.8	**178.8**	97%
BSP/BSPP	2012 /2	0.0	0.0	0.0	0.0	1/	0.0	0.0	0.0	0.0	1/
	Total		**460.9**		**286.0**			**1,358.0**		**721.7**	
Total Habitat Replacement Acres Applied											1,007.7

Note: Each of the program yearly incremental cumulatives are the bold numbers in the darker green boxes.

[1/] The majority of the 2007 though 2012 contracts are active and practices are still being applied. The planned versus applied percentage is not applicable until the majority of the contracts have been completed.

[2/] The Delta and Montrose Field Offices report the applied habitat acres on the row for the year each project was planned. The 131 acres of habitat replacement reported as applied in FY 2012, is included as part of the applied number for each of the years the projects were planned.

Table 6 – Salinity Wildlife Funding NRCS On-Farm Programs – Lower Gunnison Unit

CRSCP/EQIP/ I-EQIP Salinity Wildlife Funding	Amount
Funds Obligated to Salinity 1988 to 2011	$53,659,514
Funds Obligated to Salinity 2012	$4,174,799
Funds Obligated to Wildlife Projects 1988 to 2011	$1,581,637
Funds Obligated to Wildlife Projects 2012	$49,798
Funds Spent on Wildlife Projects 1988 to 2011	$718,217
Funds Spent on Wildlife Projects 2012	$157,827
Percent of Total Salinity Funds Obligated to Wildlife Projects 1988 to 2012	2.8%
Percent of Total Salinity Funds Spent on Wildlife Projects 1988 to 2012	1.5%

Table 7 – Salinity Wildlife Funding NRCS On-Farm Programs – Lower Gunnison Unit

BSP/BSPP Salinity Wildlife Funding	Amount
Funds Obligated to Salinity 1997 to 2011	$4,684,926
Funds Obligated to Salinity 2012	$0
Funds Obligated to Wildlife Projects 1997 to 2011	$387,613
Funds Obligated to Wildlife Projects 2012	$10,003
Funds Spent on Wildlife Projects 1997 to 2011	$247,875
Funds Spent on Wildlife Projects 2012	$52,179
Percent of Total Salinity Funds Obligated to Wildlife Projects 1997 to 2012	8.5%
Percent of Total Salinity Funds Spent on Wildlife Projects 1997 to 2012	6.4%

Table 8 – Salinity Wildlife Funding NRCS On-Farm Programs – Lower Gunnison Unit

All Salinity Wildlife Funding	Amount
Funds Obligated to Salinity 1988 to 2011	$58,344,440
Funds Obligated to Salinity 2012	$4,174,799
Funds Obligated to Wildlife Projects 1988 to 2011	$1,969,250
Funds Obligated to Wildlife Projects 2012	$59,801
Funds Spent on Wildlife Projects 1988 to 2011	$966,092
Funds Spent on Wildlife Projects 2012	$210,006
Percent of Total Salinity Funds Obligated to Wildlife Projects 1988 to 2012	3.2%
Percent of Total Salinity Funds Spent on Wildlife Projects 1988 to 2012	1.9%

Funding Discussion

The dollars spent at any given time will always be lower than the obligated funds due to unexpended funds in active contracts pending practice installation, delays between practice installation and practice certification with payment, and using estimated costs that obligate more funds than are typically needed to install all of the habitat improvements. The differences displayed in the tables above are likely due to the estimated versus actual costs and the active contracts that have not currently applied all of the practices scheduled to earn incentive payments.

During the early implementation years of the program many operators reluctantly agreed to make small and typically expensive habitat improvements as a condition to getting the funding for their irrigation improvements. Many applicants fulfilled this agreement, but a number eventually canceled or never installed the scheduled habitat improvements, so the money was obligated but never spent. This appears to have been more common in the Delta service area and appears to have not been as much of an issue in the Montrose service area. This trend was part of what necessitated the changes in how projects approached the habitat replacement agreements under salinity control. The rates of obligated versus expended funds for wildlife have been improving significantly with this new approach.

Summary Discussion and Conclusion

The habitat replacement goal is 2% of the acres treated for salinity. To date 62,306 acres have been treated with salinity practices. To be concurrent with project application, 1,246 acres of habitat replacement should currently be on the ground and functioning. To date 1,008 acres of habitat replacement are applied on the ground and functioning. The project is currently at approximately 81% of the concurrent habitat replacement goals. In 2007 NRCS Biologist's field checked all acres that had been reported as habitat replacement. The inventory resulted in a reduction of acres considered habitat replacement from 776 acres in 2006 to 684 acres in 2007 which is a relatively small loss, but does highlight the need to conduct the 3-year interval field checks. Urban development, changes in management and changes in land ownership are major reasons that some acres no longer met habitat replacement criteria and were removed from the accounting system

NRCS is currently 238 acres below concurrent habitat replacement goals. To be concurrent with salinity project implementation, NRCS will need to continue to place high priority on habitat replacement.

To increase the level and quality of wildlife replacement projects the NRCS is focusing on contracting wildlife only projects rather than trying to incorporating into a combined salinity control and wildlife project contract. In general The focused approach for wildlife contracts helps find willing and motivated producers who actively engage in larger higher quality projects, they install practices on schedule, have fewer cancelations, and provide a higher level of management and maintenance. NRCS has also been given the flexibility to use certain funding sources, in particular, BSP, to pursue non-traditional landowners that are interested in developing and managing wildlife habitat. In addition, NRCS pursues funding from other state, federal and private conservation organizations. This results in greater leveraging of limited funds and eliminates financial obstacles for the landowner.

In summary, although the Lower Gunnison Unit is behind in meeting their concurrent acreage replacement goals, significant gains have been made each of the past few years. It is assumed this trend will continue in the future, so the project will come closer to being concurrent each year. The shift to wildlife only contracts, allowing the field office biologists to focus on these high priority projects, and the program flexibility to work with non-traditional producers, and a higher level of partnering with other agencies is enabling the LG to meet their wildlife habitat replacement goals.