

**New Mexico Wetlands Protection Program
FY04 EPA WETLANDS GRANT PROGRAM
CWA Section 104(b) (3)
CD# 976732-01-0 (FY2004)**

**FINAL REPORT
EL RESTAURO PHASE 1 PROJECT-
WETLAND/RIPARIAN RESTORATION ON THE UPPER RIO GRANDE,
PILAR TO SAN JUAN PUEBLO**



Executive Summary

Contrary to the geographic position of the Rio Grande cutting through the very heart of New Mexico, the Great River remains the unifying vein of life encompassing more than eight centuries of occupation by diverse cultural groups such as the Pueblo Native Americans, the Spanish explorers, and most recently the influx of modern Americans to the desert southwest. In our arid state, riverine systems such as the Rio Grande, its tributaries, riparian ecosystems and associated wetlands also make up the most dynamic part of the landscape. The river corridor is home to more plant and animal species than observed in upland communities. And like the landscape, the culture of the Rio Grande is in dynamic continuum. The ambience of the Rio Grande is attracting newcomers who may not be aware of what the river was before. And for those that are already here, the influence of our rapidly changing technical culture poses a danger of failing to sustain long-held customs, traditions, and connection to land and environment. The demands on water resources on the Rio Grande have compromised the integrity of the river system and everything that depends on it.

El Restauro Project focuses on a 25-mile section of the Rio Grande in northern New Mexico from Pilar to Ohkay Owingeh Pueblo (formerly San Juan Pueblo) (See map). The project area is located in Taos and Rio Arriba Counties. The upper half of this reach from Pilar to the Diversion Dam at Velarde is situated in the Bosque Segment of the Lower Gorge of the Rio Grande and is designated Wild and Scenic River Study Area managed by BLM. Below the diversion at Velarde the river corridor opens up into a wide valley floor with pastoral surroundings of cottonwood bosque, fruit orchards and agricultural fields, private homes, and small traditional communities. The entire river reach is home to remnant populations of Federally Endangered Southwestern Willow Flycatcher (SWWF), potential habitat for Federally Threatened Meadow Jumping Mouse, and breeding range for Federal Species of Concern Yellow-billed Cuckoo, all riparian obligate species. The Federally threatened bald eagle also forages regularly and can be seen in the project area.

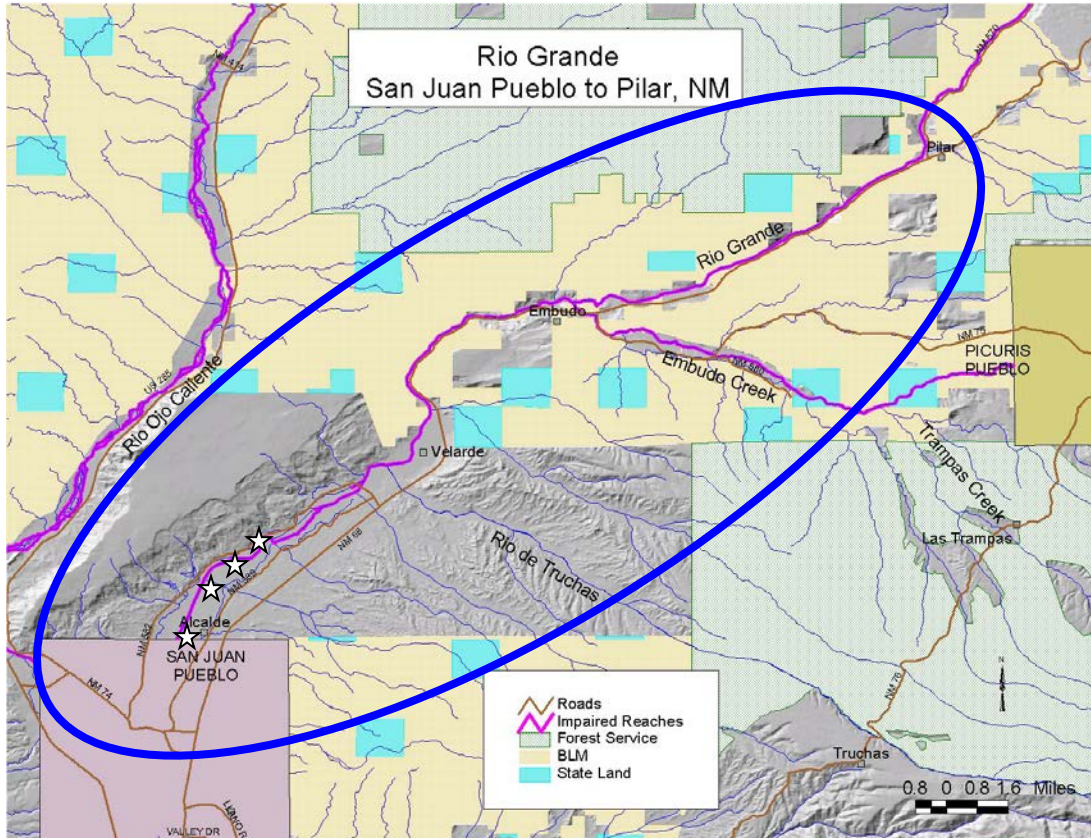


Figure 1. El Restauro Project Area. The Town of Espanola is just south of the Ohkay Owingeh Pueblo (formerly San Juan Pueblo) and not shown on the map but included in focus group activities. Stars are approximate locations of demonstration restoration projects.

The purpose of this project is to enhance and coordinate efforts to restore wetlands and wildlife habitat (particularly for endangered species), acequias and agricultural lands, and water quality along this reach of the Upper Rio Grande. Our intent is to re-engage the community to the environment using the traditional cultural values that have connected people to the land and its precious water resources. We also completed demonstration wetlands/riparian improvements on 41 acres of bosque using traditional irrigation techniques to enhance wetland efficacy, and removed invasive Russian olive from an additional 40 acres of Rio Grande bosque to improve and demonstrate bosque restoration techniques.

Communication about the idea of this project was conducted through personal interviews and group presentations to local organizations. The community members and agencies were engaged through the organization and sustainment of three sub-watershed groups in the project area. The group coordinators subsequently applied and were awarded a CWA Section 319 grant to create a Watershed Restoration Plan for the area as a direct result of their creation and work with the sub-watershed groups. In addition, the U.S. Fish and Wildlife Service targeted the project area as a focus area for Partners for Fish and Wildlife grants and participated with additional funding for one of the demonstration projects funded under this grant. We provided the community with opportunities to coordinate efforts to protect and restore the whole corridor through the development of a

Wetlands Action Plan. Critical to preserving the cultural component of this project was to follow and document the process. Key players, community leadership, project successes and community improvements were documented as “Challenges and Opportunities” white paper and quarterly Activity Summaries for the Watershed Groups. A video production and a book about the area were substituted with “Healthy Streamside Wetlands” book about how private landowners can maintain and improve streamside wetland conditions as the need for this type of information was established during the project process.

Project Goals

- Organize an active community effort composed of local organizations, tribal and cultural groups, private landowners, state and federal agency representatives, and other stakeholders to engage in riparian and wetlands restoration along the whole project area corridor and in a cultural context. Three sub-watershed groups were established to reach this goal.
- Initiate a comprehensive watershed and wetlands restoration plan focused on the wetlands portion, for the Rio Grande watershed from Pilar to San Juan Pueblo. A Wetlands Action Plan was developed and subsequently expanded as a Master’s Thesis by one of the project coordinators. In addition, the project coordinators were awarded a Section 319 grant to complete a Watershed Implementation Plan to address TMDL issues.
- Target areas within the historic floodplain of the Rio Grande for wetland / riparian restoration to reestablish habitat for the Fed Endangered SWWF, Fed Threatened Meadow Jumping Mouse, and Fed Species of Concern Yellow-billed Cuckoo, and to address water quality concerns (namely turbidity). All demonstration wetland restoration projects were constructed within the immediate riparian area adjacent to the Rio Grande and improved habitat conditions for wildlife and protected species.
- Construct demonstration wetlands/riparian restoration projects, partly in an area of the Rio Grande Bosque destroyed by fire, and using return flows to benefit water quality in the wetlands and the adjacent Rio Grande. Two sites (15 acres and 18 acres) were already selected for demonstration project implementation. Two additional demonstration restoration sites (8 acres and 40 acres) were included in the final project results.

Objectives

PROCESS:

1. Talk to community members and listen to community response. The objective would be to discover their observations of community and environmental needs – past, present and future.
2. Present the project idea and collected responses in a community town hall. Based on questions and interests of participants, a series of educational opportunities will be offered that focus on projects and solutions that address cultural and environmental issues.

3. Form an Upper Rio Grande Watershed Working Group to develop a Wetlands Action Plan. This group will be composed of community members, agencies and technical experts to ensure that interests and perspectives are represented, that solutions are locally acceptable and are based on sound science and local knowledge of the land.
4. Seek out funding sources for different parts of the project.
5. Implement community and environmental projects with stakeholder involvement as key to the process.
6. Monitor project successes through community responses to activities. Complete a book of interest to all concerned with the Rio Grande.

Original timeframe, and time of completion

The original grant was awarded by EPA Region 6 to the Wetlands Program on September 20, 2004 and to be completed on June 29, 2007. The contract with Environmental Health Associates was not completed until March 2005 which delayed beginning some of the project Tasks. The timeframe of the contract was amended in May 2005 to be extended to June 30, 2008. The first amendment was necessary to allow for the extra time to complete the permitting process and the archaeological survey during the first year of the project. An Amendment #3 was requested to extend the completion date to December 2009 for the project to complete implementation of two extra on-the-ground installations for the El Restauro Project and a maintenance book. The final restoration project was completed by December 2009 and compilation of the book was completed by December but not accepted by SWQB. The Project was extended a fourth time to accept the completion of the maintenance Book. An additional \$4,000 remained in the grant to complete the final report but due to financial errors was not available so the final report was completed later in 2010. No QAPP was prepared for this project because no environmental data was collected.

Cooperators

The New Mexico Environment Department's Wetlands Program administered the grant and the Wetlands Program Coordinator, Maryann McGraw served as Project Officer. A partnership was established to develop the grant proposal in 2004 and that partnership remained intact and served to help complete the project. The main contractors included Environmental Health Consultants for the outreach portion of the project and Wetlands Action Plan, and La Calandria Associates for the design and construction of demonstration wetlands and the Healthy Streamside Wetlands book.

Other project partners included:

New Mexico Environment Department Surface Water Quality Bureau
Bureau of Land Management
U.S. Fish and Wildlife Service
Bureau of Reclamation
Taos Land Trust
Ohkay Owingeh Pueblo
Northern New Mexico College
University of New Mexico
NMSU Sustainable Agricultural Science Center, Alcalde
Office of Cultural Affairs, Historic Preservation Division
Galisteo Watershed Association

Vecinos del Rio
Private land owners
Environmental Protection Agency
Amigos Bravos
Acequia Associations
New Mexico Acequia Commission
American Rivers
Taos Regional Water Planning Committee
LANL Water Resources Technical Assistance
TLCP Grazing Allotment
Embudo Valley Environmental Monitoring Group
Taos Soil and Water Conservation District
Southwest Water Organization, Inc.
Rio Grande Alliance
Rio Arriba County
Natural Resources Conservation Service
Interstate Stream Commission
New Mexico Cooperative Weed Management Association
Santa Clara Pueblo
City of Espanola
Rio Grande Resource Conservation and Development
Alcalde MDWCA

Funding History

Funding for SWQB staff activities, travel and supplies were provided by this grant. The contractual portion of the project was divided into Wetlands Planning Tasks and Wetlands Demonstration Restoration Tasks. Environmental Health Consultants (EHC) was chosen to perform the Wetlands Planning Tasks and to work with the public and La Calandria and Associates performed the Wetlands Demonstration Tasks under Professional Services Agreements. EHC were principally responsible for implementing Wetlands Planning Tasks 1a through 1h, Wetlands Demonstration Tasks 2g through 2i and Administrative Tasks 3a and 3b. They originally managed funds for Wetlands Demonstration Task 2c performed by La Calandria Associates, Inc. Subsequent contractual work of La Calandria Associates was managed directly by SWQB after Environmental Health Consultants contract was completed.

Match was achieved by in-kind services by Environmental Health Consultants and La Calandria Associates, watershed stakeholders, landowners participating in restoration demonstration projects, on-the-ground in-kind and planning by the Research Group (students from Northern New Mexico College) project design and donated supplies. Match exceeded the proposed amount expected in the workplan by over \$38,000. Match was documented in quarterly and semi-annual reports to EPA.

\$121,500 Federal Final \$130,602.38 Match (\$38,102.38 overmatched or 52% of total cost of the project)

TASKS, DELIVERABLES AND BUDGET:

Watershed/Wetlands Planning Tasks

Task 1a: Talk to community members and listen to community response. The objective would be to discover their observations of the river environment including perspectives of the past, present and future. COMPLETED.

Deliverables: Conversations with community members were documented in Activity Summaries submitted by Environmental Health Associates throughout 2005, 2006, 2007 and early 2008 (see quarterly reports). Through these interviews and community meetings, the project area was divided into an upper focus area comprised of communities from Embudo to Pilar and a second focus area from Velarde to Ohkay Owingeh Pueblo. A third focus group was formed in the Town of Espanola. A mailing list was started and is included in the Wetlands Action Plan document. In addition many organizations were identified as potential partners and are listed in the EHC Activity Summaries.

Task 1b: Present the El Restauro Project idea and collected responses in a community town hall. Objective would be to gain support for El Restauro and present benefits to the community. COMPLETED.

Deliverables: The Wetlands/ Riparian Restoration Town Hall Meeting was held on October 13th, 2005 at the Embudo Station Restaurant on the Rio Grande. The meeting was extremely well attended with most of our original project partners and many new stakeholders that EHC has been in contact with over the last few months. Maryann McGraw began with a presentation on wetlands restoration. She gave the attendees information on the benefits of wetlands on intercepting nonpoint source pollution as well as showing slides of various restoration projects. Denise Smith of Partners for Fish and Wildlife followed with her presentation on the programs for restoration offered by US Fish and Wildlife. She presented various funding opportunities for landowners interested in wetlands and riparian restoration. The meeting adjourned shortly before noon and many people stayed and collected information and talked among themselves. EHC followed up shortly after this meeting with the watershed groups to inspire discussion to move forward in the planning process.



Figures 2 and 3. El Restauro Town Hall October 2005

Task 1c: Form an Upper Rio Grande Watershed Working Group to develop a Pilar to San Juan Corridor Restoration Plan focused on wetlands and riparian restoration. This group will be composed of community members and technical experts to ensure that interests and perspectives are represented, that solutions are locally acceptable and are based on sound science and local knowledge of the land. We expect that this will entail at least 10 meetings of the identified partners during the life of the project. COMPLETED

Deliverable: Environmental Health Consultants conducted 16 community meetings in 2005, 2006 and 2007 and established three focus areas and watershed groups for those focus areas, Pilar/Embudo, Alcalde/Velarde and Town of Espanola. Meetings under this grant principally took place in 2005 and 2006. Thereafter, Environmental Health Consultants received a CWA Section 319(h) grant for watershed group formation. Subsequent meetings were undertaken as watershed group formation meetings under 319. From this point on Environmental Health Consultant worked under this wetlands grant to meet with individuals and organizations to develop a Wetlands Action Plan document. A special meeting was held with all focus groups in June 2006 after severe flooding ravaged the project area. The meeting was called the “Flooding Forum” and flooding issues caused primarily due to the lack of available floodplain and associated wetlands and riparian areas were discussed. A “Flooding Forum” results paper was developed. In addition a “Challenges and Opportunities” white paper was developed from the comments and ideas developed during the watershed meetings and personal interviews. Meeting minutes and sign-in sheets are included in Activity Summaries submitted by the consultants.

Task 1d: Advertise and conduct four educational seminars on topics related to wetlands and watersheds. The Watershed Coordinator and EHS consultant will find suitable speakers to address relevant topics. COMPLETED.

Deliverable: The first educational seminar took place in October 2005 at Los Luceros Ranch near Alcalde (project parter). Jack Loeffler, a well known author and environmental advocate gave the presentation “Watershed Thinking” to the local community. Jack Loeffler is a writer, aural historian and radio producer whose books and radio programs focus on traditional culture and environmental activism in the West and New Mexico. He addresses the relationship of cultures to their respective environments, the intertwining of cultural diversity with bio-diversity, and the relevance of cognitive diversity.



Figure 4. Jack Loeffler Presentation, October 2004.

The second educational seminar was given to the Acequia Commission by Maryann McGraw and Environmental Health Consultants. Maryann's Presentation was "El Restauro, A Cultural, Historical and Environmental Restoration and Preservation Project." The meeting was held in Santa Fe at the State Capital.



Figure 5. Maryann McGraw giving presentation and explaining maps and hand outs to the New Mexico Acequia Commission.

In June 2005, The Wetlands Program Coordinator and Environmental Health Consultants participated in H2O 2005 with a wetlands booth, handouts and a poster session about El Restauro. In addition, one of our project partners, Southwest Water Organization also had an adjacent booth and talked to visitors about water issues and wetlands and our El Restauro project as matching contribution to the project. Our booth space was also donated for the El Restauro Project.



Figure 6 and 7. H2O 2005 in Santa Fe. The SWQB Wetlands Program and Southwest Water Organization (El Restauro project partner) had booths and talked about and presented El Restauro, wetlands and water issues.

A fourth presentation was given in December 2005 by Dave Morgan of La Calandria Associates who is a local riparian restoration specialist and has worked principally at Ohkay Owinge Pueblo.. He presented at the Onate Visiter Center near Los Luceros and had 13 attendees.

A fifth presentation was given by Steve Gulden about water research conducted at the NMSU Sustainable Agriculture Center in Alcalde. In particular, Steve is researching how acequias are rewetting the floodplain and how it affects local groundwater recharge and chemistry. His principal audience was the Research Group started by Environmental Health Consultants with students from Northern New Mexico College in Espanola.

Maryann McGraw also presented a lecture and power point presentation about wetlands to the environmental science class at Northern New Mexico College entitled “Riparian/Wetlands Restoration Techniques– Not Just Cottonwoods and Willows Anymore”. Some of these students became part of the El Restauro Research Group. Environmental Health consultants also had a booth about El Restauro at the college on Earth Day.

Copies of advertisements, sign-in sheets, and photodocumentation are included in the project quarterly reports.



El Restauro

Wetland Restoration on the Rio Grande



Only when events are rooted in culture might they have a reality that endures.

Paul Horgan, 1954



Figure 8. El Restauro Logo created for Bookmarks and Poster to publicize the project.
Art work by Maryann McGraw

Task 1e: Develop a blueprint of actions to be taken and the desired community, wetland/riparian, and water quality goals and outcomes. COMPLETED.

Deliverable: During monthly meetings of the focus watershed groups, Environmental Health consultants have been forming goals and actions that each community believes is important. This activity was emphasized during the “Flooding Forum” where future activities to prevent unnecessary erosion and flooding damage were developed. This information is included in the Wetlands Action Plan in the section called “Recommendations for Management Measures to Protect Wetlands and Riparian Areas”.

Task 1f: Develop a bank of wetland/riparian projects that identifies lead agencies or cooperators and includes stakeholder involvement as key to the process. COMPLETED.

Deliverable: The Wetlands Action Plan Appendix includes a list of potential private landowners that are interested in improving their river property.

Task 1g: Seek out other funding sources to help implement the corridor restoration in the long term.COMPLETED.

Deliverable: A list of State and federal funding sources is included as an Appendix in the Wetlands Action Plan.

Task 1h: Monitor project success through community responses to activities. Collect information to develop a documentary video and book of interest to all concerned with the Rio Grande. Progress obtaining stakeholder involvement will be monitored by tracking public and agency involvement and by completing components of the Wetlands Action Plan.

Deliverable: Photo documentation of community process, narrative description, and documentation is included in the activity summaries included with project quarterly reports.

Environmental Health Consultants acquired help from Javier Arrellano, a local filmmaker, to videotape the El Restauro Town Hall for the project video. Unfortunately, the lighting was inadequate and the video turned out too dark for use. Maryann McGraw then met with consultants to help develop the video and professional consultants’ informal bids for the project were too high to be considered under the existing funding. Other funding sources to supplement did not become available at that time.

Derived from community comments, the idea to create a book that would help landowners that live adjacent to the Rio Grande and its perennial tributaries to maintain their streamside property in a natural condition was developed. The book is called “Healthy Streamside Wetlands.” All federal funds for this Task were used to write and design this 26-page book that is easy to read and filled with suggested activities for keeping streamside wetland and riparian areas in good condition. The book is also

illustrated in full-color. Approximately 100 copies were made by La Calandria Associates with their own resources and about 40 copies were given to SWQB Wetlands Program. The Wetlands Program Coordinator is looking for other funding sources to print more copies of the popular book.

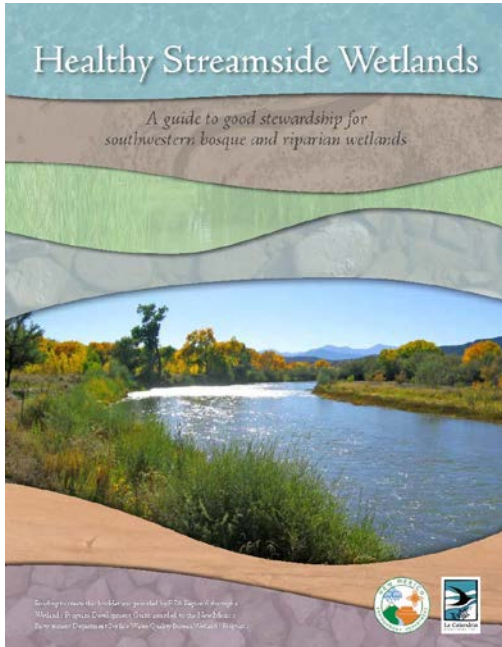


Figure 9. Healthy Streamside Wetlands Book

Demonstration Wetlands Project Tasks

Task 2a: Complete conservation easements or cooperative landowner agreements with project cooperators (landowners). SWQB will work with landowners and EPA to complete agreements.

Deliverable: Landowner agreements to perform work on landowner's property were completed for three property owners and an MOU was completed to work on property owned by the State (Office of Cultural Affairs). Copies of the landowner agreements and MOU were included with Quarterly and Semi-Annual reports to EPA. Within the landowner agreements, the property owners agreed to allow their property to remain wetland habitat for 10 years after the completion of the restoration project. The Los Luceros property is in a conservation easement and is owned by the State of New Mexico. In addition, Rio Arriba County has an ordinance that protects Rio Grande Bosque from development activities.

The first restoration sub-project is at Cottonwood Ranch near Lyden, New Mexico owned by Richard Cook. The sub-project restored approximately 15 acres of Rio Grande Bosque which was destroyed by fire and then graded by the landowner prior to the development of this project. Spring runoff flooded the property in 2005 allowing for regrowth of native species including cottonwood seedlings and native grasses. The project supplemented with grading to increase floodplain micro-topography and included extensive planting of native vegetation to increase wetland diversity. A culvert was replaced along a bosque ranch road

to improve inflow to on-site wetlands and some plantings of native willow were included to increase bank stability. The Northern New Mexico College Research Group also helped with volunteer planting of donated native riparian shrubs. A Final Report for the Cottonwood Demonstration Wetland was completed in November 2006 and is attached to this final project report.

The second restoration sub-project is at La Estancia Allegra Ranch near Villita, New Mexico owned by Victor di Suvero and Barbara Windom. Prior to the restoration project, the landowner worked with the Office of the State Engineer to ensure that his water rights were recorded. The outgoing end of the Villita Ditch is located on the property and had been previously improved with horse-trail bridges and meandered by a local restoration expert, but the ditch edges were steep, weedy and lacked wetland vegetation. The demonstration project flattened and drew out the banks of the ditch to create more flooded land area and included extensive planting of diverse wetland plants and of native coyote willow for Southwestern Willow habitat. Non-Native Russian olives and Siberian elms were removed from the bosque and native shrubs were planted over the entire bosque area of the property. Native wetland plants were gathered as plugs from a neighboring field that pooled water and supported wetland vegetation. The following summer, the landowner informed the Wetlands Program Coordinator that the project was overgrown with sunflowers and Siberian elm sprouts and the landowner thought that the plantings had failed. The contractor visited the property and determined that the sunflowers were not a problem but Siberian elm sprouts and other weeds were a problem. The landowner was not sure what type of maintenance should be conducted. This issue was the impetus for creating the Healthy Streamside Wetlands book. An addendum to the original landowner agreement was created and the contractor removed weeds and other plants that were invading the project area and instructed the landowner on future maintenance of the restoration project. A final Report for the La Estancia Allegra Property was completed in December 2008 and is attached to this final project report.

Because funds remained under the demonstration wetlands portion of El Restauro. Two other property owners were identified and demonstration restoration designs were developed.

The third restoration subproject was conducted on the bosque property of David Maestas, principal of the local grade school. The project was designed in partnership with the USFWS Partners for Fish and Wildlife Program. The El Restauro Project paid principally for most of the Russian olive and invasive tree removal and for grading and excavating of a wetland flow through swale. The swale was deepened and enlarged and had inlets and outlets. Beaver deceivers were constructed on the culvert outlet so that it would not get plugged by beaver. The landowner was responsible for herbicide treatment of the Russian olive stumps and rootsprouts, for constructing a fence to prevent trespass, and for oversight help during construction. The Partners Program was responsible for plantings and had not completed their portion at the time the El Restauro Project ended. The project restored 8 acres of wetland and riparian habitat along the banks of the Rio Grande. A final report for this project was completed in September 2009 and is attached to this final project report.

The fourth restoration project occurred on the Los Luceros Historic Ranch that was previously owned by private landowners that were planning to complete restoration as match for this project. After the El Restauro project started, the Historic Ranch was sold to the State of New Mexico for its cultural and historical significance. The State did not have funding to complete restoration activities there so the El Restauro project contributed funds to remove invasive Russian olive from 40 acres of bosque at the Ranch. Even though the project is completed, the Wetlands Program Coordinator is contributing and partnering with the Department of Cultural Affairs to have more restoration completed on the property in the future. A final report for this project was completed in December 2009 and is attached to this final project report.

Task 2b: Gather baseline data in demonstration project areas, including a land survey, archaeological survey, water table elevations, water quality sampling, soil sampling, aerial photography, CWA 404 and NPDES permits. Contractors will be hired for these duties. SWQB will collect water quality samples using SWQB QAPP. COMPLETED.

- Baseline data needed to design the demonstration restoration projects was collected by the contractor, La Calandria Associates.
- Water quality sampling included the deployment of one thermograph at the Los Luceros site by the Wetlands Program Coordinator. This sampling location has now become a permanent sampling location for Rio Grande water quality and will be sampled in the future by the Monitoring and Assessment Section. Thermographs were deployed under the SWQB QAPP and showed some exceedences of the temperature standard. However, the demonstration wetlands projects did not address temperature issues in the Rio Grande. One nutrient sample was taken at the LEA Ranch due to algae issues in the wetland swale prior to restoration. The sample showed elevated phosphorus (0.24 mg/l), which may be due to agricultural runoff in the ditch feeding the swale. The swale is located at the outlet (desague) of the ditch close to where the flow re-enters the Rio Grande. The landowner related that the algae growth was less noticeable the growing season after the plantings and the plantings flourished, but because of other potential factors for lower algae growth including increased flow, rainfall, etc., we can only speculate that the demonstration restoration reduced nutrient levels in the first year.
- Aerial photographs were taken of the project area in 2006 at the beginning of the project and are shown in the final reports.
- Because no fill was placed in the wetland areas, only removed, the ACOE determined that CWA Section 404 permits were not required and that informal determination is on file at SWQB.
- For each project, an NPDES low erosivity waiver was obtained and construction was scheduled during low rainfall/runoff seasons. An NPDES permit was not required for the Los Luceros project because the project only entailed chipping of non-native trees.

- Archaeological clearance was obtained for each subproject except for Los Luceros which is owned by the Department of Cultural Affairs which houses the Historic Preservation Division. No historical properties or cultural properties were affected by any of these sub-projects.
- Informal contact was made with USFWS regarding potential endangered species issues and because we were creating habitat, no further consultation was necessary. In addition, USFWS partnered with us on the Maestas Property, and had previously done work at Los Luceros and determined that no protected species would be negatively affected by project activities.

Task 2c: Wetland/ Riparian Landscape and Engineering Design. A committee composed of project cooperators (landowners), Wetlands Coordinator, interested agency representatives and Wetlands and Engineering will meet to develop design. COMPLETED.

Deliverable: For each sub-project, the Wetlands Program Coordinator, contractor and landowners worked together to come up with an appropriate design that was presented and included as part of the landowner agreements. More information is included in the final reports for each sub-project.

Task 2d: Remove invasive vegetation and construct wetlands, wet meadows, water control and riparian areas. A contract for operators, equipment, fuel and supplies will be used for some of the work and some will be donated by project cooperator (landowner).COMPLETED.

Deliverable: All earthwork was completed. Photo-documentation of the process and final reports are attached to this final project report for each sub-project. Daily progress report was journaled by the contributing landowners on the La Estancia Allegra Ranch and Los Luceros Historic Ranch projects. Contractor oversight was documented in contractor reimbursement requests.

Task 2e: Purchase and obtain donations of riparian trees, mid-story native shrubs, wetland plants, and seed mix. COMPLETED.

Thirty five trees and 65 potted riparian shrubs were donated by the Los Lunas Plant Materials Center and were planted at Cottonwood Ranch and Los Estancia Allegra Ranch. Truckloads of riparian plants were transplanted from nearby sites for these projects as well. Thousands of herbaceous wetland plants, native riparian shrubs and seed were purchased for these sub-projects. See sub-project final reports for details about purchased and donated plants.

Task 2f: Install wetlands plantings and some riparian native vegetation, reclamation and seeding of all disturbed sites. COMPLETED.

Deliverable: Plant installations were completed primarily by the contractor, but also by the landowner's laborers, the Wetlands Program Coordinator, and the El Restauro Research Group. Photo-documentation of the process and final reports are attached to this final project report for each sub-project. Daily progress report was journaled by the contributing landowners on the La Estancia Allegra Ranch and Los Luceros Historic Ranch projects. Contractor oversight was documented in contractor reimbursement requests.

Task 2g: Organize 4 educational demonstration days for the public to visit the wetlands site. Wetlands coordinator, landowners and EHC consultants will advertise and conduct field days. COMPLETED.

Deliverable: Environmental Health consultants established a Research Team composed primarily of Northern New Mexico College students, but also some community members participated. The Research Team attended lectures set up by EHC and also completed riparian plantings at the Cottonwood Ranch site and prepared final reports about the activities to their Environmental Studies class at NMCC. A summary of their activities is attached to the EHC Final Report submitted with this project Final Report.



Figure 10. Members of the Research Team installing wetland shrubs at the Cottonwood ranch Demonstration Restoration site. April 2006.



Figure 11. Pole planting at Cottonwood Ranch by Research Team members.

Task 2h: Develop website display. Link to NMED Surface Water Quality Bureau Website to promote model project for other efforts on the Upper Rio Grande. This will be developed by a contractor.

Deliverable: The El Restauro Project is featured on the NMED SWQB Wetlands Program website. Environmental Health consultants developed a newsletter to promote watershed and wetlands activities and information. They also developed an e-mailing list and sent the newsletter directly to those with an interest in the project.

Task 2i: Monitor restoration project success. COMPLETED.

Deliverable: Please see final reports for sub-projects that include photos of restoration projects and implementation results.

Other Responsibilities

Task 3a: Contract administration, reimbursements and other administrative duties. COMPLETED.

Deliverable: Workplans were completed for La Calandria Associates and Environmental Health Consultants Professional Services Agreements, and these contracts were administered by the Wetlands Program Coordinator. Four project amendments were approved by EPA. Twenty two reimbursement requests were processed. The Wetlands Program Coordinator managed match accounting.

Task 3b: Interim and final reports to EPA. As the project proceeds, SWQB will report to EPA Quarterly. Reports will include project's progress and other deliverables.COMPLETED.

Deliverable: Ten quarterly reports and 4 semi-annual reports were completed and forwarded to EPA. Four final reports were developed for the subprojects and a final report was submitted to SWQB by Environmental Health Consultants..AThis is the Final Report for the El Restauro Project.

Task 3c: Representative to attend EPA wetlands national meetings annually. COMPLETED.

Deliverable: The original grant application for this project included a request for \$1500 for attending National Meetings, however only \$500 was awarded for this task. These funds were combined with funds from other grants to pay for the Wetlands Program Coordinator to attend the Association of State Wetland Manager's meeting State/Tribal/Federal Coordination Workshop March 27-29, 2007 in Sheperdstown, WV.

Environmental Outcomes: Project Successes

This project has been a great success with a number of positive outcomes.

1. Increased participation in wetland restoration and participation by diverse sectors of the community. At the time of project commencement there were no working watershed groups in the Upper Rio Grande- Pilar to Ohkay Owingeh area. Much of the land along this stretch of the river is privately held and engaging participation in restoration and protection of wetlands in a watershed context was a new concept brought to the community. A collaborative process was initiated to engage in comprehensive planning for restoration and protection of wetland and riparian areas associated with the Rio Grande. Various stakeholders, community members and land managers were interviewed and then brought together to form three focus groups to collectively discuss the needs of each particular stretch of the Rio Grande, including the perennial Rio Embudo from Cañada Ojo Sarco to the confluence with the Rio Grande, and the Town of Espanola. Working together, stakeholders developed a draft Wetlands Action Plan and participated in educational forums, field reviews and discussion sessions to bring wetlands, watershed restoration and water quality issues to the forefront.

2. Collaborative planning efforts and communication. Collaboration between landowners and land management agencies for successful planning was a main objective for undertaking this project. Networking between stakeholders and providing education to landowners in terms of funding programs and technical assistance opportunities through existing and developing government and non-profit programs was an important part of this process. Stakeholders working together to understand the relationship between one property and the next to develop a comprehensive Wetlands Action Plan that could be used to acquire funding for projects through multiple resources for private landowners was a successful outcome of this project.

3. *Diverse partnerships.* The diversity of organizations that took part and supported the process is listed above. Involvement of some quazi-governmental organizations like support from the Acequia Associations and educational institutions like NMSU Alcalde Experimental Association (currently doing Rio Grande floodplain research) was a bonus to the success of the project.

4. *Generous donations by landowners.* The generous donation and cooperation by our selected demonstration restoration landowners allowed us to more than double the restoration acres completed.

5. *Increased stakeholder knowledge about wetlands science and importance of wetlands in an arid environment.* The watershed group involvement, education days and educational forums engaged a diversity of groups that learned about wetlands in the arid Southwest and how wetlands, floodplains, culture and agriculture can coexist, how the river has been channeled and the floodplains starved and decadent due to the lack of flooding, that some floodplain functions have to be recreated through restoration projects such as El Restauro, and how floodplains regulate floodwaters and erosion potential. In the field, local community members experienced the links between wetlands, ground water and surface water and the importance of wetland habitat to the life cycle of many arid climate species.

6. *Application of informed, scientifically valid approaches.* All of the demonstration restoration approaches were based on sound scientific principals as a basis for restoration design and implementation. The need for more information about natural wetland characteristics and health led to the development of the informative book “Healthy Streamside Wetlands.”

7. *Increased quality and quantity of wetlands.* The project included the demonstration restoration of over 81 acres of wetlands and riparian areas.

8. *Improved knowledge and decision-making ability of local officials who are in the position of creating laws, ordinances, permits, etc.* A section on protection of wetlands through ordinances and other local governance initiatives is included in the Wetlands Action Plan.

Obstacles:

- Contracts and landowner agreements take much time to put in place delaying the initiation of key components of this project. However, delays such as these are not uncommon in the normal course of NMED business and should be planned for in the development of a project timeline.
- Because no watershed groups existed in the project area, much time was devoted to the process of watershed group formation. However, meeting and interviewing individuals and obtaining their unbiased input were benefits to the project.

Lessons learned: Spending a second season reviewing and working on parts of the restoration project that needed maintenance greatly increased the success of the project both with the landowners and with the wetland restoration itself.

Additional lessons learned are in the Final Report from Environmental Health Consultants

EPA Feedback Loop: Reports for this project were submitted quarterly to indicate progress, outputs and the achievement of milestones. EPA representatives visited restoration project locations on several occasions during the course of the project and EPA comments were helpful during project implementation.