Arizona Water Protection Fund Commission

Annual Report

2000-2001

ARIZONA WATER PROTECTION FUND COMMISSION

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Mark Myers
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Paul Orme

Honorable Jane Dee Hull
Governor of Arizona, and

Honorable Members
Arizona State Legislature

I am pleased to submit to you the Fiscal Year 2001 Annual Report of the Arizona Water Protection Fund Commission. This report provides an overview of program accomplishments from July 1, 2000 through June 30, 2001.

This was the sixth year of our statewide public grants program for rivers and streams restoration, maintenance, and enhancement. The Commission continued to hold its business meetings around the state to encourage local and regional feedback. During this year APWF held its "Day at the Legislature" where Grantees, Staff, Legislators, and the Public gathered at the State Capitol to share information about the program and its achievements.

In fulfilling its main statutory directive, the Commission continued its function of awarding grants through a public application process for river and riparian related projects. The FY 2001 cycle resulted in the award of 17 grants for about $2.3 million. The Commission has awarded more than 100 grants since the beginning of this program, which have been distributed throughout every county of the state.

The Commission is proud to oversee this important function for the State of Arizona. Please contact me at (602) 248-8482 if I can answer any questions.

Sincerely,

Roger S. Manning
Chair

...to allow the people of this state to prosper while protecting and restoring this state's rivers and streams and associated riparian habitats...to provide an annual source of funds for the development and implementation of measures ...to maintain, enhance and restore rivers and streams and associated riparian habitats..."

Arizona Revised Statutes Title 45, Chapter 12, 1994

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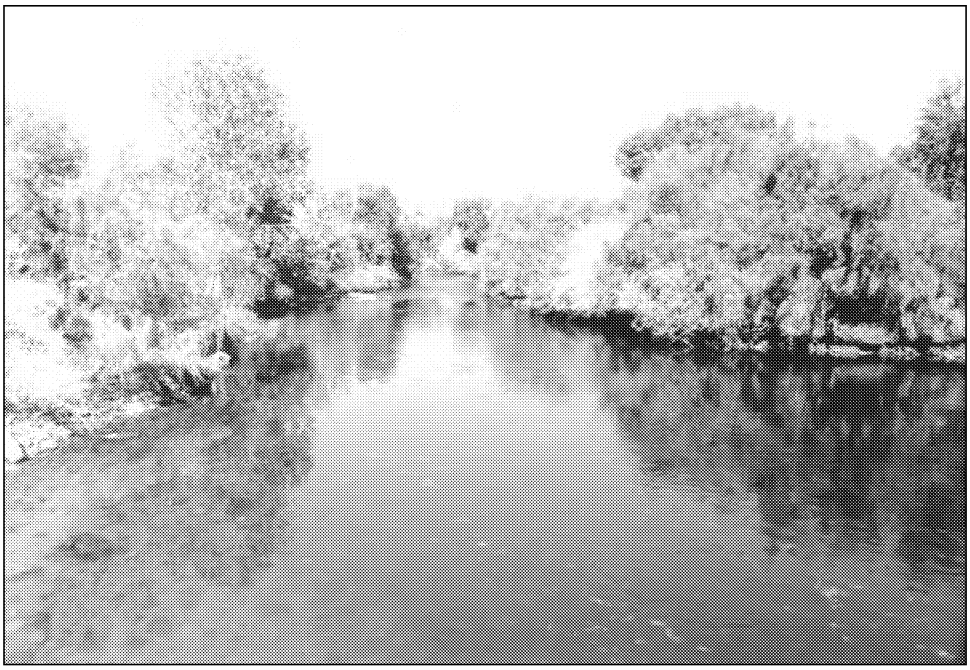
Background

In 1994, the Arizona Legislature established the Arizona Water Protection Fund. The purpose of the Fund is to provide monies to the public through a grant process for the implementation of projects to maintain, enhance and restore rivers and streams and associated riparian resources. This includes fish and wildlife that are dependent on these important habitats.



By statute, the Fund is to receive $5 million annually to provide grants for projects benefiting rivers and riparian habitat. Any individual or entity, state or federal agency, or political subdivision of Arizona may submit an application for an Arizona Water Protection Fund grant. All projects must be located in Arizona, be consistent with state water law, and respond to the overall goals of the legislation.

The Arizona Water Protection Fund Commission, which oversees the Fund, is comprised of 15 citizen voting members and two non-voting members. The 15 voting members represent a diversity of interests and are appointed by various government entities to serve staggered 3-year terms (Table 1).

The Arizona Department of Water Resources provides staff and administrative support to the Commission. The Arizona State Land Department staff position that acts as a special liaison between the Commission and the Natural Resource Conservation Districts has remained vacant.

Statement of Problem

Rivers, streams and wetlands are important resources to the people of Arizona and humans have been using and changing these resources for centuries. These centuries, we have learned that proper land and watershed management can make a profound difference in the health of our rivers and wetlands.

There is also an increasing awareness that healthy waterways and their associated riparian areas have economic value. Economic benefits take many forms including ecotourism, recreation, streambank stabilization, fish and wildlife habitat, water quality improvement, groundwater recharge, water storage in streambanks which maintains stream base flows, and food sources for pollinators and insectivores. In addition, real estate that is located on the edge of a riparian area often benefits economically from the area's aesthetic and natural values.

Table 1. Arizona Water Protection Fund Commissioners			
Commission Member Name	**Affiliation/Expertise**	**Term Expires**	**Appointing Authority**
Adams, Lynda	Member of Public – Hydrologist	2001	Governor
Brick, Paul	Natural Resource Conservation Districts	2001	Governor
Beyer, William**	Member of Public – Engineer	2003	Senate President
Brandt, Frank	Environmental Organization w/ riparian expertise– Northern Arizona Audubon	2001	Governor
Eddy, Daniel	Indian Tribe – Colorado River Indian Tribes	1999	InterTribal Council
Geib, John	Municipality w/CAP Subcontract and County w/ <500,000 population	2002	House Speaker
Keane, John	Agricultural Improvement District w/ Natural Resource Expertise – SRP	2002	Governor
Kirchner, David	Public – Hydrologist	2002	Senate President
Koppinger, Doug	Municipality w/ CAP Subcontract & County w/ >500,000 & <1.2 million population – City of Tucson	2003	Senate President
Laurenzi, Andy Meyers, Mark	Environmental Organization w/ Riparian Expertise – The Nature Conservancy	2000 2003	Governor
Manning, Roger S.*	Municipality w/ CAP Subcontract & County w/ >1.2 million population – Arizona Municipal Water Users Association	2003	Governor
Meidinger, Dawn	Industrial Water User & CAP Subcontractor – Cyprus Climax Metals	2002	Governor
Newman, John	Multi-County Water Conservation District – Central Arizona Water Conservation District	2003	District's Board
Orme, Paul	Agriculture – Orme Ranch	2003	House Speaker
Vacant	Member of Public – Range Conservation		Senate President

*Commission Chair
**Commission Vice-Chair

Consider the cost avoidance benefits of flood damage that a healthy riparian area can produce. Barren streambanks will erode quickly during a flood event and can result in the loss of acres of land and topsoil. More than 10,000 acres of land were lost to erosion due to high flood flows in 1993.[1] Soil erosion contributes to siltation in our reservoirs, resulting in loss of water storage capacity and increased dredging costs. In other cases, increased erosion causes soil deposition downstream, raising the stream bottom and increasing the threat of floods to adjacent developed lands.

1 Arizona Game and Fish Department, Statewide Riparian Inventory Database, 1996.

Riparian restoration is valued by the public, however, the more degraded a system becomes, the more expensive it is to restore. For instance, the Rio Salado (Salt River) restoration through Mesa, Tempe and Phoenix has been estimated at $84 million. In Tucson, restoration of a portion of Rillito Basin has been estimated to cost between $25 million to $35 million and restoration of a 6-mile reach of the Santa Cruz River to cost $40 million.

Philosophy

The Fund is intended to be a proactive response to possible federal intervention in Arizona's stream and riparian resource issues. The Fund was created to address Arizona river and riparian associated issues in a proactive way, through using incentives rather than regulation and emphasizing local implementation.

The Fund's statutes and operation are based on a "bottom-up" rather than a "top-down" approach. The Fund is a public granting program that asks the public to propose local riparian solutions, rather than having the state dictate specific measures, priorities or areas of concern.

The Grant
Application Process

The Commission accepts grant applications annually. Applications are made available for public review and comment for 45 days after the application deadline. Commission staff conducts a technical review of the projects and ranks them according to a system created by the Commission. A brief summary of the technical review is provided to the Commissioners and the Grantee. Grantees are then given an opportunity to make an oral presentation to the Commission about their project. During this presentation, the Grantee may address any issues, omissions or misinterpretations of information raised during the review process. Commissioners take all this information into consideration, however, use their own additional criteria and judgment to select projects. Funding decisions occur approximately four months after the application deadline. Projects are awarded funding upon receiving a majority vote of the Commission members present at the time of voting.

Grants are implemented through contracting with the Grantees. Grants can extend over a three-year period. Funds are paid out over the term of the contract as activities are accomplished.

Accomplishments

Grant Awards

In fiscal year 2001, the Commission funded 17 of the 19 grant applications received, for a total of $2.3 million. Over it's six grant cycles, the Commission has awarded a total of over 100 grants, ranging in amounts from $7,390 to $2,562,000. Grants have been awarded in every county of the State. The Commission has funded a wide range of projects including channel restoration, riparian revegetation, wetland restoration, wetland creation, watershed management plans, applied research, fencing and grazing improvements, and erosion control projects.

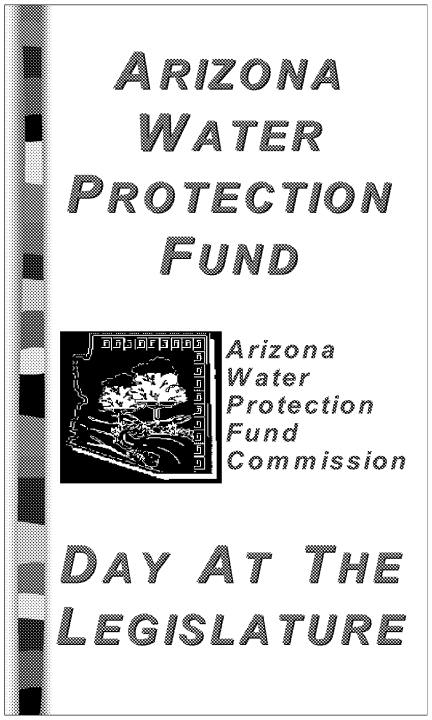
The Map, Map Key and Appendix in this report contain a compilation of grants awarded between FY 1995 – 2001 that have been implemented through contracts and had expenditures made

against the grant award. Grants awarded during this fiscal year are listed but may not have had contracts implemented and/or funds spent during this fiscal year. Of the grants awarded in all years, some were unable to be brought to contract. In those cases monies were unobligated, reverted to the Fund, and were recycled into new grants. Grants that have been unobligated have been omitted from our lists in this report.

Public Input Process
The Commission initiated its Second Triennial Public Input Process through a series of public meetings held throughout the state. The purpose of these meetings were to:

- Provide an opportunity for the public to present comments about the program regarding:
  - program success and opportunities for improvement, and
  - satisfaction with funding priorities and the granting process.

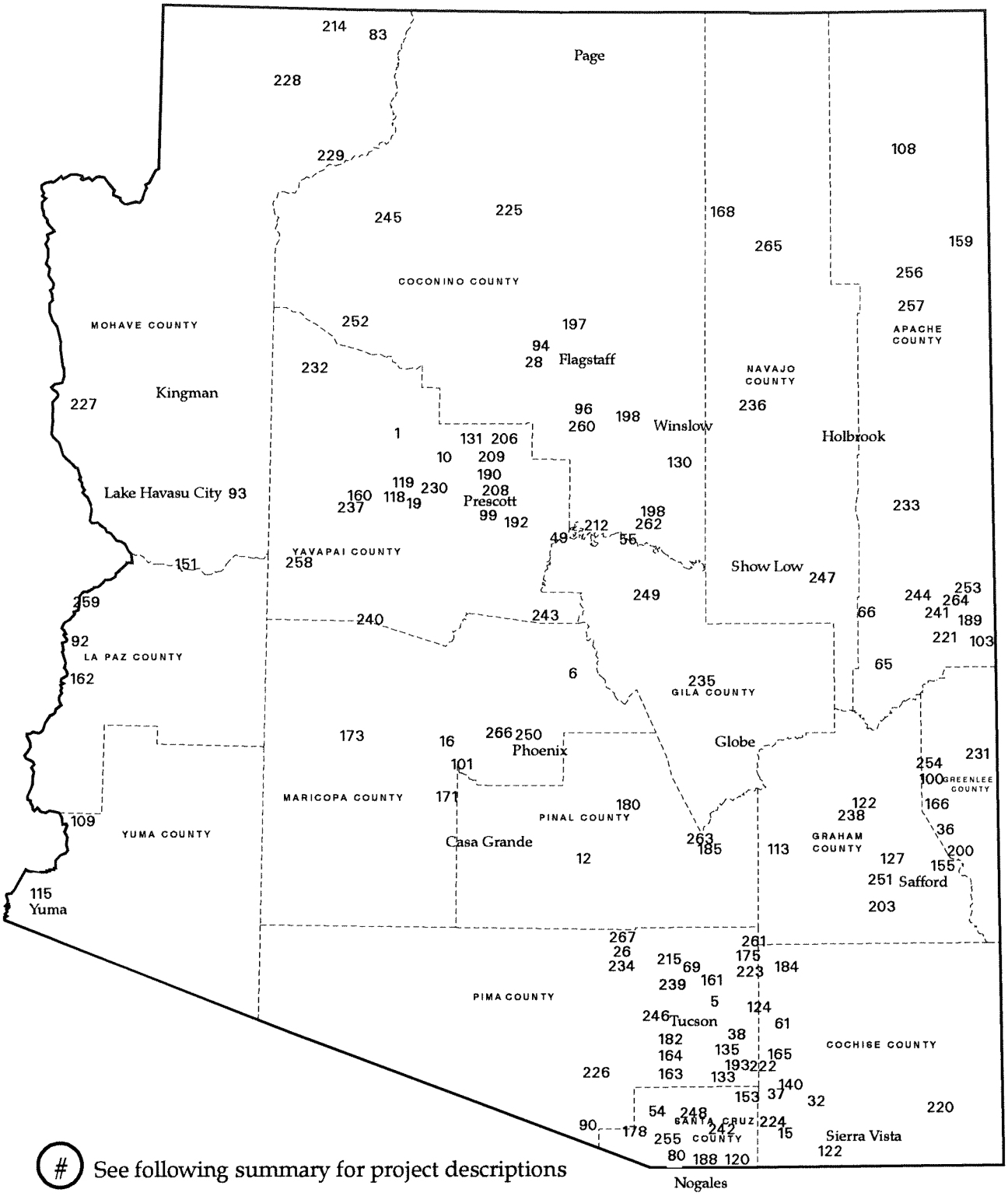
Day at the Legislature
On January 23, 2001 Arizona Water Protection Fund (AWPF) grantees held a poster session at the State Capitol. Commissioners and other Fund supporters were present at this event. The purpose was to demonstrate to Legislators the benefits being derived from the Fund. Grantees showcased examples of how their worthy projects are making a difference in riparian resources throughout the state.



Strategic Planning Process
On February 5, 2001 the AWPF Executive Committee began discussing the development of a strategic plan for the Commission covering the next 5 to 10 year period. Chairman Roger S. Manning appointed a subcommittee of the full Commission to lead the effort. Work on the strategic plan began in March 2001 and the Full Commission is expected to adopt the final Strategic Plan in December 2001.

Arizona Water Protection Fund Project Locations

November 05 2001



See following summary for project descriptions

NORTH

0 10 20 30 40 50 100 150

MILES

ARIZONA DEPARTMENT OF WATER RESOURCES

/programs/adjrwt/projects/work/wpfund/wpf.aml

Table 2: Map Key			
Map #	**Project #**	**Project Title**	**Grant Amount2**
1	95-001	Stable Isotope Assessment of Groundwater and Surface Water Interaction – Application to the Verde River Headwaters	$21,508.00
5	95-002	Partnership for Riparian Conservation in Northeastern Pima County	$78,100.00
6	95-003	Sycamore Creek Riparian Management Area	$115,522.00
10	95-004	Road Reclamation to Improve Riparian Habitat Along the Hassayampa and Verde Rivers	$45,693.00
12	95-008	Picacho Reservoir Riparian Enhancement Project	$2,400,000.00
15	95-009	Regeneration and Survivorship of Arizona Sycamore	$34,617.00
16	95-010	Assessment of the Role of Effluent Dominated Rivers in Supporting Riparian Functions	$46,750.00
19	95-012	The Comprehensive Plan for the Watson Woods Riparian Preserve	$33,267.00
26	95-007	High Plains Effluent Recharge Project	$189,000.00
28	95-006	Riparian Habitat Restoration Along a Perennial Reach of a Verde River Tributary	$102,535.00
32	95-005	Preservation of the San Pedro River Utilizing Effluent Recharge	$2,562,000.00
36	95-014	Gila Box Riparian and Water Quality Improvement Project	$157,223.00
37	95-015	San Pedro Riparian National Conservation Area Watershed Rehabilitation/ Restoration Project	$286,000.00
38	95-016	Refinement of Geologic Model, Lower Cienega Basin, Pima County, Arizona	$7,390.00
49	95-017	Restoration of Fossil Creek Riparian Ecosystem	$59,693.00
54	95-018	Autecology and Restoration of *Sporobolus Wrightii* Riparian Grasslands in Southern Arizona	$53,743.00
55	95-019	Quantifying Anti-Erosion Traits of Streambank Graminoids	$14,910.00
61	95-020	Teran Watershed Enhancement	$151,753.00
65	95-021	Lofer Cienega Restoration Project	$161,204.00
66	95-022	Gooseberry Watershed Restoration Project	$126,406.00
69	95-023	Sabino Creek Riparian Ecosystem Protection Project	$16,385.00
80	95-024	Potrero Creek Wetland Characterization and Management Plan	$75,300.00
83	96-0004	Hydrologic Investigation & Conservation Planning: Pipe Springs	$50,000.00
90	96-0010	Rehabilitating the Puertocito Wash on the Buenos Aires National Wildlife Refuge	$83,432.00
92	96-0016	‘Ahakhav Tribal Preserve	$1,131,477.00
93	96-0017	Big Sandy River Riparian Project	$92,000.00
94	96-0019	Response of Bebb Willow to Riparian Restoration	$33,752.00
96	96-0003	Hoxworth Springs Riparian Restoration Project	$31,545.00
99	96-0007	Ash Creek Riparian Protection Project	$19,248.00
100	96-0012	Eagle Creek Watershed and Riparian Stabilization	$80,626.00

2 The “Grant Amount” column represents the full grant awarded for each project and will total more than the grant disbursements and grant obligations sections on the financial page. Some grants have been completed for less money than the amount budgeted while others have terminated prior to expenditure of the full grant amount. This column has not been changed to reflect these situations.

Table 2: Map Key Continued			
Map #	**Project #**	**Project Title**	**Grant Amount**
101	96-0005	Tres Rios River Management & Constructed Wetlands Project	$1,000,000.00
103	96-0022	Saffell Canyon and Murray Basin Watershed Restoration	$24,316.00
108	96-0025	Tsaile Creek Watershed Restoration Demonstration	$152,775.00
109	96-0011	Lower Colorado River – Imperial Division Restoration	$583,276
113	96-0014	Klondyke Tailings Response Strategy Analysis (RSA)	$90,000.00
115	96-0023	Watershed Restoration at the Yuma Conservation Gardens	$31,050.00
118	96-0008	Watson Woods Vegetation Inventory	$16,115.00
119	96-0009	Watson Woods Riparian Preserve Visitor Management	$8,557.00
120	96-0006	Hydrogeologic Investigation of Groundwater Movement and Sources of Base Flow to Sonoita Creek and Implementation of Long-Term Monitoring Program	$155,715.00
122	96-0018	San Carlos Spring Protection Project	$131,540.00
124	96-0013	Happy Valley Riparian Area Restoration Project	$64,697.00
127	96-0015	Abandonment of an Artesian Geothermal Well	$113,360.00
130	96-0002	Completion Phase: Hi-Point Well Project	$77,844.00
133	96-0026	Riparian Restoration on the San Xavier Indian Reservation Community	$591,319.00
135	96-0020	Cienega Creek Stream Restoration	$210,700.00
140	96-0001	San Pedro Riparian National Conservation Area Watershed Protection and Improvement Project	$89,250.00
151	96-0021	Riparian Vegetation and Stream Channel Changes Associated with Water Management along the Bill Williams River	$14,788.00
153	97-027	Lyle Canyon Allotment Restoration Project	$55,476.33
155	97-028	Creation of a Reference Riparian Area in the Gila Valley – Discovery Park	$182,000.00
159	97-029	Demonstration Enhancement of Pueblo Colorado Wash at Hubbell Trading Post	$91,110.00
160	97-030	Walnut Creek Center for Education and Research – Biological Inventory	$50,580.00
161	97-031	Atturbury Wash Project	$154,580.00
162	97-032	‘Ahakhav Tribal Preserve – Deer Island Revegetation	$228,800.00
163	97-033	Proctor Vegetation Modification	$11,487.00
164	97-034	Oak Tree Gully Stabilization	$42,491.00
165	97-035	Watershed Improvement to Restore Riparian and Aquatic Habitat on the Muleshoe Ranch CMA	$128,315.00
166	97-036	Stable Isotopes as Tracers of Water Quality Constituents in the Upper Gila River	$27,338.00
168	97-037	Talastima (Blue Canyon) Watershed Restoration Project	$310,192.00
171	97-038	Tres Rios Wetland Heavy Metal Bioavailability Design for Denitrification and Microbial Water Quality	$117,728.00
175	97-040	Bingham Cienega Riparian Restoration Project	$84,679.00
178	97-041	Altar Valley Watershed Resource Assessment	$88,730
180	97-042	Queen Creek Restoration and Management Plan	$207,595.00
185	97-044	San Pedro River Preserve Riparian Habitat Restoration Project	$336,127.00
188	97-045	Santa Cruz Headwaters Project	$100,445.00

Table 2: Map Key Continued			
Map #	**Project #**	**Project Title**	**Grant Amount**
189	98-046	EC Bar Ranch Water Well Project	$19,800.00
190	98-047	Upper Verde Adaptive Management Unit	$115,300.00
192	98-048	Verde Riparian Action Plan: Riparian Species Planting Program	$15,000.00
193	98-049	Empire/Cienega/Empirita Fencing Project	$58,850.00
197	98-050	Watershed Restoration of a High Elevation Riparian Community	$286,275.00
198	98-051	Evaluation of Carex Species for Use in Riparian Restoration	$47,907.00
200	98-052	Tritium as a Tracer of Groundwater Sources and Movement in the Upper Gila River Drainage	$41,028.00
203	98-054	Fluvial Geomorphology Study and Demonstration Projects to Enhance and Restore Riparian Habitat on the Gila River from the New Mexico Border	$449,872.00
206	98-055	Horseshoe Allotment: Verde Riparian Project II	$85,436.00
208	98-057	Upper Verde Valley Riparian Area Historical Analysis	$41,719.00
209	98-058	Effects of Removal of Livestock Grazing on Riparian Vegetation and Channel Conditions of Selected Reaches of the Upper Verde River	$116,500.00
212	98-059	Verde River Headwaters Riparian Restoration Demonstration Project	$148,429.00
214	98-061	Watershed enhancement on the Antelope Allotment	$135,807.00
215	98-062	Partnership for Riparian Conservation in Northeastern Pima County II	$44,313.00
220	98-066	Hay Mountain Watershed Rehabilitation	$116,525.00
221	99-067	EC Bar Ranch Wildlife Drinker Project	$30,500.00
222	99-068	Lower Cienega Creek Restoration Evaluation Project	$83,272.00
223	99-069	Riparian and Watershed Enhancements on the A7 Ranch – Lower San Pedro River	$486,197.00
224	99-070	Lyle Canyon Allotment Riparian Area Restoration Project --- Phase 2	$214,860.00
225	99-071	Protection of Spring and Seep Resources of the South Rim, Grand Canyon National Park by Measuring Water Quality, Flow, and Associated Biota	$295,627.00
226	99-072	Leopard Frog Habitat and Population Conservation at Buenos Aires National Wildlife Refuge	$120,485.00
227	99-073	Colorado River Nature Center Backwater --- Phase 2	$41,500.00
228	99-074	Proposal to Inventory, Assess, and Recommend Recovery Priorities for Arizona Strip Springs, Seeps, and Natural Ponds	$101,856.00
229	99-075	Glen and Grand Canyon Riparian Restoration Project	$317,285.00
230	99-076	Watson Woods Preserve Herpetological Interpretive Guide and Checklist	$31,255.55
231	99-077	Blue Box Crossing	$150,000.00
232	99-078	Aquifer Framework and Ground-Water Flow Paths in Big and Little Chino Basins	$181,840.00
233	99-079	Little Colorado River Riparian Restoration Project	$404,580.00
234	99-080	Cortaro Mesquite Bosque	$486,650.00
235	99-083	Cherry Creek Enhancement Demonstration Project	$263,225.00
236	99-084	Assessments of Riparian Zones in the Little Colorado River Watershed	$79,443.50
237	99-085	Kirkland Creek Watershed Resource Assessment	$131,430.00

Table 2 Map Key Continued			
Map #	**Project #**	**Project Title**	**Grant Amount**
238	99-086	Abandonment of Gila Oil Syndicate Well #1	$333,790.00
239	99-087	Rillito Creek Habitat Restoration Project	$293,000.00
240	99-088	Wickenburg High School Stream Habitat Creation	$69,100.00
241	99-089	Town of Eager/Round Valley Water Users Association Pressure Irrigation Feasibility Study & Preliminary Design	$320,540.00
242	99-090	Redrock Riparian Improvement	$62,350.00
243	99-091	Effects of Livestock Use Levels on Riparian Trees on the Verde River	$41,417.00
244	99-092	Little Colorado River Enhancement Demonstration Project	$348,137.94
245	99-093	Coconino Plateau Regional Water Study	$134,200.00
246	99-094	Santa Cruz River Park Extension	$434,684.00
247	99-095	Brown Creek Riparian Restoration	$34,037.00
248	99-096	Upper Santa Cruz Watershed Restoration	$187,350.00
249	99-097	Dakini Valley Riparian Project	$66,130.00
250	99-098	Rio Salado Habitat Restoration Project	$950,408.00
251	00-099	Gila Reference Riparian Area, Discovery Park	$152,850.80
252	00-100	Willow Creek Riparian Restoration Project	$34,390.00
253	00-101	Murray Basin and Saffell Canyon Watershed Restoration Project	$258,227.83
254	00-102	Upper Eagle Creek Restoration on East Eagle Allotment: 4 Drag Ranch	$66,330.00
255	00-103	Riparian Restoration on the Santa Cruz River – Santa Fe Ranch	$49,008.00
256	00-104	Continued Enhancement of Pueblo Colorado Wash at Hubbell Trading Post National Historic Site	$69,349.00
257	00-105	Hubbell Trading Post Riparian Restoration with Treated Effluent	$61,951.00
258	00-106	Tres Alamos Dirt-Tanks-To-Aquatic-Habitat-Conversion	$77,657.97
259	00-107	CRIT 30 Acre Revegetation Project	No Funding – Unable to Contract
260	00-108	Lake Mary Watershed Streams Restoration	$253,119.00
261	00-109	Middle San Pedro Watershed Project	$249,871.00
262	00-110	Upper Fairchild Draw Riparian Restoration	$35,515.00
263	00-111	Cooperative Grazing Management for Riparian Improvement on the San Pedro	$203,701.00
264	00-112	Town of Eagar/Round Valley Water Users Association Pressure Irrigation Feasibility Study and Preliminary Design – Additional Mapping for Water Quality Improvements in the Watershed	$151,829.00
265	00-113	Polacca Wash Grazing Management	$267,511.00
266	00-114	The Papago Park Greenline Project	$229,152.00
267	00-115	Tucson Audubon Society North Simpson Farm Riparian Recovery Project	$127,409.30

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APPENDIX A: SUMMARY OF GRANTS

AWARDED DURING FY '96

95-001WPF: Stable Isotope Assessment of Groundwater and Surface Water Interaction - Application to the Verde River Headwaters

Map #:	1		
Grantee:	Arizona State University	County:	Yavapai
AWPF Funding:	$21,508.00	Completed:	September 1997

Project Description: This project, located in the headwaters of the Verde River near Paulden, Arizona, was a one-year study to sample surface and groundwater in the Chino Valley and to analyze the waters for naturally occurring stable isotopes of hydrogen and oxygen. The main goal of the study was to determine if a hydraulic connection exists between the aquifers of the Chino Valley and the Verde River. This information would assist in determining the effects, if any, of groundwater pumping within the Chino Valley on the flow in the Upper Verde River.

95-002WPF: Partnership for Riparian Conservation in Northeastern Pima County (PROPIMA)

Map #:	5		
Grantee:	Rincon Institute	County:	Pima
AWPF Funding:	$78,100.00	Completed:	August 1998

Project Description: The Rincon Institute designed and implemented landowner-based strategies for protecting healthy riparian ecosystems from urbanization pressures in the Tanque Verde Creek and Rincon Creek watersheds. The project focused on identification and development of restoration strategies for damaged riparian ecosystems in these two watersheds. The Grantee was the Rincon Institute, but the partnership involved in this study consisted of personnel from the Coronado National Forest, Saguaro National Park, University of Arizona, U.S. Geological Survey, developers and landowners in the watersheds.

95-003WPF: Sycamore Creek Riparian Management Area

Map #:	6		
Grantee:	Tonto National Forest	County:	Maricopa
AWPF Funding:	$115,522.00	Completed:	May 1999

Project Description: The purpose of the project was to restore and protect a 19 mile reach of Sycamore Creek, a major tributary of the Verde River, from uncontrolled livestock grazing and off road vehicle use. To stop further damage to the creek, 15 miles of fence was constructed to enclose the riparian corridor. The objective was to increase the canopy cover and density of riparian vegetation within the corridor.

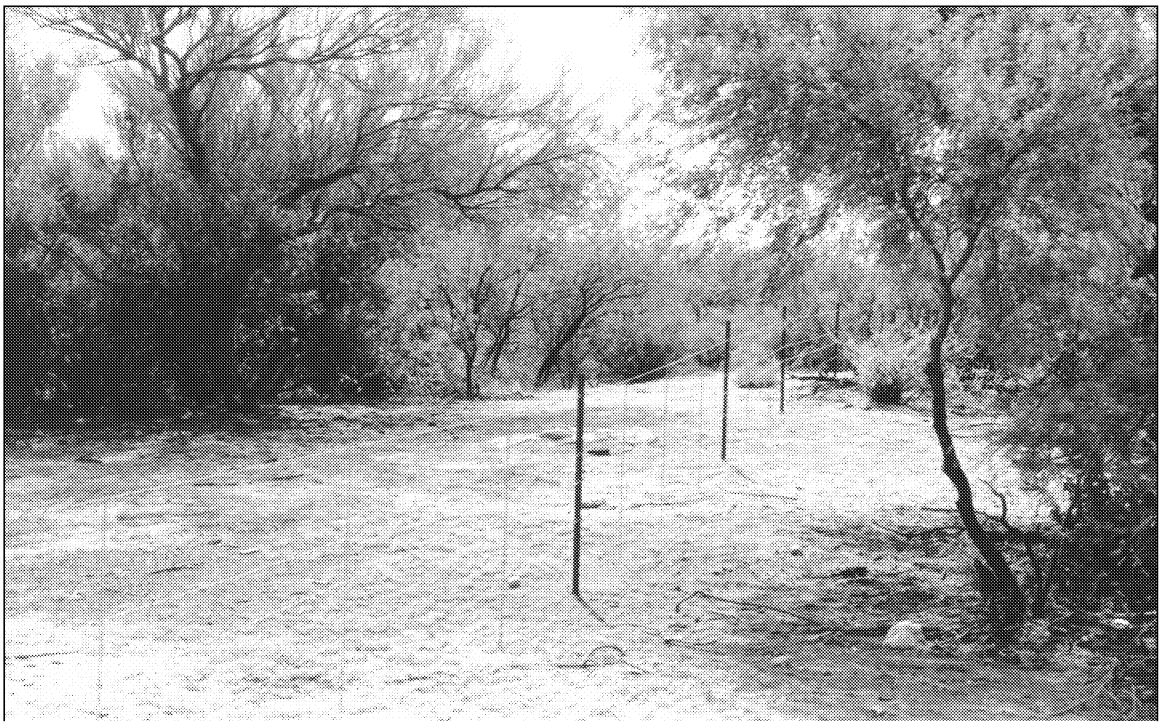

Figure 2. Fencing constructed at the Sycamore Creek Management Area to prevent uncontrolled livestock grazing and off-road vehicle damage. 95-003WPF

95-004WPF: Road Reclamation to Improve Riparian Habitat along the Hassayampa and Verde Rivers

Map #: 10
Grantee: Prescott National Forest — County: Yavapai
AWPF Funding: $45,693.00 — Completed: April 1999

Project Description: This three year project resulted in closure and revegetation of 19.7 miles of roads adjacent to the Hassayampa and Verde Rivers within the Prescott National Forest. The goal of the project was to reduce erosion and sedimentation into the rivers, restore riparian and upland vegetation on the closed and reclaimed road surfaces, and eliminate unauthorized roads.

95-005WPF: Preservation of the San Pedro River Utilizing Effluent Recharge

Map #: 32
Grantee: City of Sierra Vista — County: Cochise
AWPF Funding: $2,562,000.00 — Completion Date: September 2004

Project Description: This project is a partnership between the City of Sierra Vista, the Arizona Water Protection Fund and the U.S. Bureau of Reclamation. The City intends to build a constructed wetland and recharge facility as part of the expansion of their wastewater treatment facility. The wetland will be used to improve the effluent water quality so it can be recharged back into the aquifer. By recharging effluent, the City hopes to minimize any adverse effects on the flow of the San Pedro River from groundwater pumping.

95-006WPF: Riparian Habitat Restoration along a Perennial Reach of a Verde River Tributary

Map #:	28		
Grantee:	Northern Arizona University	County:	Coconino
AWPF Funding:	$102,535.00	Completed:	March 1999

Project Description: The primary purpose of this three-year project was to restore habitat critical to the successful regeneration of a Bebb willow-mixed graminoid riparian plant community in the area of Hart Prairie located northwest of Flagstaff on a tributary to Sycamore Creek. The project involved removing an existing surface water diversion, restoring the natural drainage channel, fencing critical areas, and monitoring vegetation response to hydrologic changes.

Figure 3. Researcher collecting soil moisture data at Hart Prairie. 95-006WPF

95-007WPF: High Plains Effluent Recharge Project

Map #:	26
Grantee:	Pima County Flood Control District
County:	Pima
AWPF Funding:	$189,000.00
Completion Date:	June 2002

Project Description: This project intends to integrate riparian protection and enhancement with operation of a groundwater recharge facility utilizing Central Arizona Project water. The project is located along the effluent-dominated riparian corridor of the Santa Cruz River in the northwest portion of the Tucson Active Management Area and is the first component of a much larger project that will stretch for several miles within the floodplain of the Santa Cruz River. Pima County Flood Control District is conducting this project in conjunction with several federal, state and local agencies.

95-008WPF: **Picacho Reservoir Riparian Enhancement Project**

Map #: 12

Grantee: Pinal County Department of Civil Works

County: Pinal

AWPF Funding: $2,400,000.00

Completion Date: Terminated, January 2000

Project Description: This project was to enable Pinal County to purchase sufficient quantities of CAP water over a 15-20 year period to protect and enhance the 2,400-acre riparian and wetland habitat that currently exists within the Picacho Reservoir. The habitat was periodically threatened by lack of water or dry-out from irrigation drawdown and drought. Under this grant, Pinal County was able to establish a minimum pool within the reservoir to provide protection and enhancement of wildlife and aquatic resources.

95-009WPF:
Regeneration and Survivorship of Arizona Sycamore

Map #: 15

Grantee: Arizona State University

County: Maricopa

AWPF Funding: $34,617.00

Completed: December 1998

Project Description: The goal of this research project was to develop information to help determine where and under what conditions sycamore trees grow best. The project involved collection of field data along several perennial, intermittent, and ephemeral streams in southern and central Arizona, with the primary goal of increasing the understanding of factors that influence regeneration and survivorship of Arizona sycamore. Factors related to water availability and land use were evaluated in the study.

Figure 4. Collecting Samples from an Arizona Svcamore. 95-009WPF

95-010WPF: **Assessment of the Role of Effluent Dominated Rivers in Supporting Riparian Functions**

Map #: 16

Grantee: Arizona State University | County: Maricopa

AWPF Funding: $46,750.00 | Completed: December 1997

Project Description: Researchers studied sites along six reaches of three Arizona streams (two reaches per stream), where both an effluent dominated section and a natural perennial section existed. The study concentrated on one of the selected streams and compared some of the functions of the riparian ecosystem along the effluent-dominated and non-effluent dominated reaches. The objective was to determine whether there were differences in ecosystem responses between effluent-dominated reaches and non-effluent dominated reaches.

Figure 5. Watson Woods Preserve. 95-012WPF

95-012WPF: **The Comprehensive Plan for the Watson Woods Riparian Preserve**

Map #: 19

Grantee: Prescott Creeks Preservation Association | County: Yavapai

AWPF Funding: $33,267.00 | Completed: December 1996

Project Description: This project was designed to produce a comprehensive plan to manage Watson Woods, a 125 acre riparian gallery forest located along Granite Creek in Prescott, Arizona. The comprehensive plan addressed management, restoration, monitoring, and environmental education program plans.

95-014WPF: Gila Box Riparian and Water Quality Improvement Project

Map #:	36		
Grantee:	Bureau of Land Management	County:	Graham & Greenlee
AWPF Funding:	$157,223.00	Completed:	May 1999

Project Description: This project was to improve and enhance the riparian habitat and water quality of the Gila Box Riparian National Conservation Area (RNCA) on the upper Gila River by moving livestock grazing from the river to the adjacent upland areas. Approximately six miles of fencing was constructed; water lines, stock tanks and water pumps were installed to provide water to the upland areas.

95-015WPF: San Pedro Riparian National Conservation Area Watershed Rehabilitation/ Restoration Project

Map #:	37		
Grantee:	Bureau of Land Management	County:	Cochise
AWPF Funding:	$286,000.00	Completed:	April 2000

Project Description: The objective of this project was to rehabilitate and restore approximately 4,450 acres of eroded, ephemeral washes and upland areas that are located 0.5 to 1 mile from the San Pedro River within the San Pedro Riparian National Conservation Area (SPRNCA). This was accomplished by recontouring ephemeral washes and adjacent uplands and by revegetating these areas with native plant species.

95-016WPF: Refinement of Geologic Model, Lower Cienega Basin, Pima County, Arizona

Map #:	38		
Grantee:	Arizona Geological Survey	County:	Pima
AWPF Funding:	$7,390.00	Completed:	September 1996

Project Description: This research project was designed to produce a refined geologic model for the lower Cienega Basin, located southeast of Tucson. The geologic model is an important component of computer models that are used to predict the impact of groundwater pumping within the basin on perennial and intermittent flowing reaches of lower Cienega Creek.

95-017WPF: Restoration of Fossil Creek Riparian Ecosystem

Map #:	49		
Grantee:	Rocky Mountain Research Station	County:	Gila
AWPF Funding:	$59,693.00	Completed:	March 1999

Project Description: This study was to determine the potential effects that re-establishment of part or all of the presently diverted flows of Fossil Creek could have on re-establishment of riparian vegetation along the stream's corridor. A major component of this project was to compare and contrast historical vegetation with present vegetation to determine the consequences of adding additional water into the creek. The stream has been de-watered for approximately 80 years by diversions for hydroelectric use, but may receive some or all of this water within the next few years due to the relicensing process for the hydroelectric power plant.

95-018WPF: Autecology & Restoration of *Sporobolus wrightii* Riparian Grasslands in Southern Arizona

Map #: 54
Grantee: Arizona State University
County: Cochise, Santa Cruz, Pima
AWPF Funding: $53,743.00
Completed: June 1999

Project Description: This study was to acquire ecological information necessary to understand the natural processes allowing for regeneration and maintenance of *Sporobolus wrightii* (giant sacaton) riparian grasslands along rivers in southern Arizona. This information will be used to determine the natural recovery and restoration potential of this type of community on abandoned agricultural fields located along these alluvial river systems.

95-019WPF: Quantifying Anti-Erosion Traits of Streambank Graminoids

Map #: 55
Grantee: Arizona State University
County: Pima
AWPF Funding: $14,910.00
Completed: December 1997

Project Description: This study measured and compared physical traits of streamside grasses and grass-like plants (graminoids) to determine their potential capacity to stabilize streambanks. The study sites were located on Cienega Creek in Pima County. The study looked at grasses and graminoids in terms of their erosion-prevention effectiveness for stream restoration and bank stabilization projects.

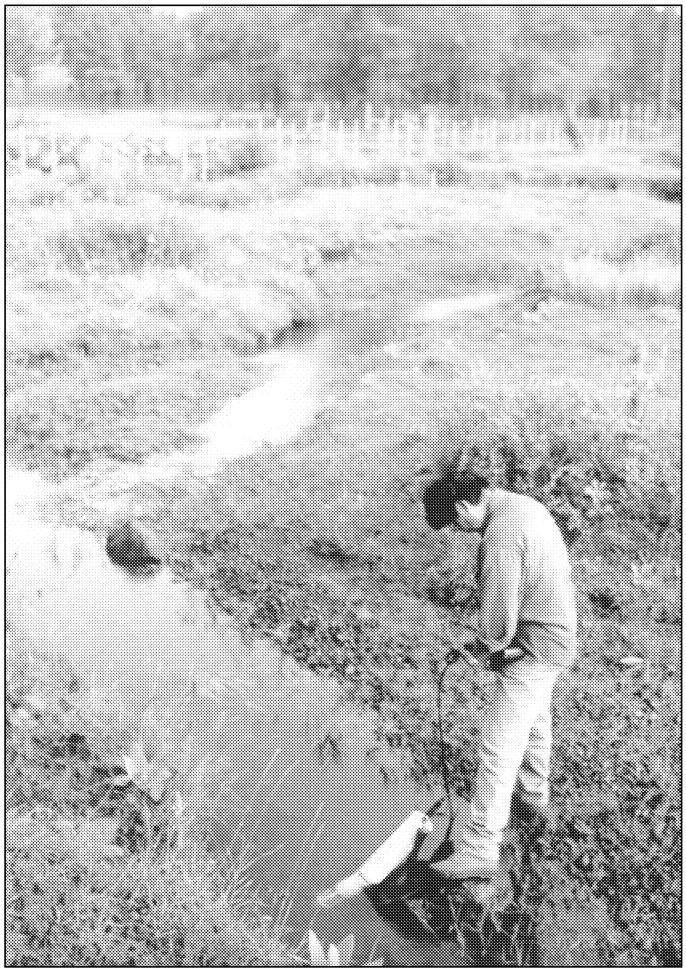

Figure 6. Water testing at a wet meadow in Gooseberry Watershed. 95-022WPF

95-020WPF: Teran Watershed Enhancement

Map #: 61
Grantee: Redington Natural Resource Conservation District
County: Cochise
AWPF Funding: $151,753.00
Completed: April 1999

Project Description: The purpose of this project was to improve watershed conditions within the Teran Watershed, located along the San Pedro River. Thousands of small, loose-rock dam structures have been constructed in an attempt to reduce surface water runoff rates, increase duration of channel flow, improve groundwater recharge and enhance riparian habitat for wildlife.

95-021WPF: Lofer Cienega Restoration Project

Map #:	65		
Grantee:	White Mountain Apache Tribe	County:	Apache
AWPF Funding:	$161,204.00	Completed:	March 1999

Project Description: This project incorporated stream assessments, long-term monitoring, fence construction, grazing management, biological assessments, and feral horse trapping and removal in an attempt to restore Lofer Cienega. Lofer Cienega is one of the largest cienegas on the Fort Apache Indian Reservation and when restored, should provide critical wildlife and fish habitat. In addition it is a significant cultural resource to the tribe.

95-022WPF: Gooseberry Watershed Restoration Project

Map #:	66		
Grantee:	White Mountain Apache Tribe	County:	Apache
AWPF Funding:	$126,406.00	Completed :	March 1999

Project Description: The primary purpose of this project was to restore the health of Gooseberry Watershed by improving management of the riparian meadows and reconstructing stream crossings. The project incorporated stream assessments, improved riparian grazing management, clean-up projects and public education, channel restoration and biologic assessments to meet its goals.

95-0023WPF: Sabino Creek Riparian Ecosystem Protection Project

Map #:	69		
Grantee:	Hidden Valley Homeowners Association	County:	Pima
AWPF Funding:	$16,385.00	Completed:	April 1998

Project Description: Through this project, the Hidden Valley Homeowners Association acquired the necessary equipment to record streamflow measurements and to write a report which analyzes and presents data in a format that can be submitted to the Arizona Department of Water Resources in support of an application for non-consumptive, instream flow water right for a reach of Sabino Creek. The project area is a privately owned natural riparian park owned by the Hidden Valley Homeowner's Association in Tucson.

95-0024WPF: Potrero Creek Wetland Characterization and Management Plan

Map #:	80		
Grantee:	EnviroNet, Inc.	County:	Santa Cruz
AWPF Funding:	$75,300.00	Completed:	May 1997

Project Description: This wetland/riparian area is located adjacent to Nogales. The purpose of this one-year project was to determine the source of water that sustains the wetland/riparian area, and to determine factors critical to its continuation as a wetland area. The Grantee also evaluated the area's potential for habitat improvement or habitat replication. The project included both a biologic and hydrogeologic evaluation of the site as well as development of a wetland management plan.

AWARDED DURING FY '97

96-0001WPF: San Pedro Riparian National Conservation Area Watershed Protection and Improvement Project

Map #:	140		
Grantee:	Bureau of Land Management	County:	Cochise
AWPF Funding:	$89,250.00	Completed:	September 1998

Project Description: The project's purpose was to improve, enhance and protect the riparian habitats and water quality in the San Pedro National Riparian Conservation Area. Part of the funds were spent on installation of 12 miles of fencing to eliminate livestock trespass on 36 miles of the San Pedro River. This project will enhance the riparian ecosystem and associated wildlife habitats without undue impacts to upland grazing allotments.

96-0002WPF: Completion Phase: Hi-Point Well Project

Map #:	130		
Grantee:	Navajo County Natural Resource Conservation District	County:	Coconino
AWPF Funding:	$77,844.00	Completed:	October 1999

Project Description: This project was to develop 24 water troughs and 3.5 miles of cross fencing to more evenly distribute grazing by livestock and ungulates. The objective was to improve vegetative cover, thereby reducing erosion and sediment deposition in both Chevelon Creek and Clear Creek, perennial tributaries to the Little Colorado River.

96-0003WPF: Hoxworth Springs Riparian Restoration Project

Map #:	96		
Grantee:	Northern Arizona University	County:	Coconino
AWPF Funding:	$31,545.00	Completed:	June 1999

Project Description: Scientists at NAU were working with the Coronado National Forest to restore the historic stream channel to a portion of a perennial stream that flows from Hoxworth Springs. The stream has experienced downcutting and a significant loss of riparian vegetation due to channelization and intense grazing from livestock and elk. Channel stabilization was accomplished using earth moving equipment and revegetation. Elk exclosures were constructed to reduce grazing pressure during restoration efforts.

96-0004WPF: Hydrologic Investigation and Conservation Planning, Pipe Springs, AZ

Map #:	83		
Grantee:	National Park Service, Pipe Springs National Monument	County:	Mohave
AWPF Funding:	$50,000.00	Completed:	November 1998

Project Description: This project included a detailed chemical analysis of water from Pipe Springs and from springs and wells in the surrounding area. The objective was to determine the

cause(s) of decreased spring flow. A conceptual model was developed of the groundwater flow system feeding the springs. The project provided a better understanding of the groundwater hydrology of the aquifer associated with the springs and wells in the immediate vicinity, providing information for wise water use planning for all area users.

96-0005WPF: Tres-Rios River Management and Constructed Wetlands Project

Map #: 101
Grantee: City of Phoenix
County: Maricopa
AWPF Funding: $1,000,000.00
Completed: May 2000

Project Description: This grant funded part of the costs associated with preparing an environmental impact statement for the Tres-Rios wetlands. The Tres-Rios project will provide a continuous and constant source of water in the Salt River that will maintain riparian vegetative communities and associated wildlife habitat.

Figure 7. Spring at Pipe Springs National Monument. 96-004

96-0006WPF: Hydrogeologic Investigation of Groundwater Movement and Sources of Base Flow to Sonoita Creek and Implementation of Long-Term Monitoring Program

Map #: 120
Grantee: The Nature Conservancy
County: Santa Cruz
AWPF Funding: $155,715.00
Completed: August 1999

Project Description: This project was to obtain hydrogeologic data from new groundwater monitoring wells and assist in determining sources of groundwater discharge that sustain base flow in the perennial reach of Sonoita Creek upstream from Lake Patagonia in Santa Cruz County.

96-0007WPF: Ash Creek Riparian Protection Project

Map #: 99
Grantee: Mingus Springs Camp; Henry Dahlberg Foundation
County: Yavapai
AWPF Funding: $19,248.00
Completed: October 1999

Project Description: The Ash Creek project was a joint effort between the Mingus Springs Camp and the U.S. Forest Service to restore the riparian habitat fed by several springs. The

project was to improve turkey habitat and extend the riparian area by increasing water retention through the construction of gabions and log dams.

Figure 8. Erosion Control Structure at Mingus Springs Camp. 96-007WPF

96-0008WPF: Watson Woods Vegetation Inventory

Map #:	118		
Grantee:	Prescott Creeks Preservation Association	County:	Yavapai
AWPF Funding:	$16,115.00	Completed:	April 1998

Description: The Watson Woods Vegetation Inventory characterized the vegetative communities within the Watson Woods Riparian Preserve in order to describe baseline conditions at the site. This information will be used to guide management and restoration efforts at the preserve.

96-0009WPF: Watson Woods Riparian Preserve Visitor Management

Map #:	119		
Grantee:	Prescott Creeks Preservation Assoc.	County:	Yavapai
AWPF Funding:	$8,557.00	Completed:	August 1997

Project Description: The Watson Woods Riparian Preserve has an on-going need to manage visitor activities including control of access, maintenance of infrastructure, public outreach and educational information. This grant allowed preserve managers to develop a plan that will

facilitate a better quality visitor experience and will protect the park itself from degradation due to inappropriate use.

96-0010WPF: Rehabilitating Puertocito Wash on Buenos Aires National Refuge

Map #:	90		
Grantee:	Arizona Conservation Voters Habitat Fund	County:	Pima
AWPF Funding:	$83,432.00	Completed:	November 1999

Project Description: This project was to rehabilitate Puertocito Wash, an eroded ephemeral stream, through the construction of two gabions along the stream course and the re-establishment of native grasses. A resource-monitoring program was designed and implemented and a watershed demonstration area was established for local ranchers and other members of the public.

96-0011WPF: Lower Colorado River - Imperial Division Restoration

Map #:	109		
Grantee:	Bureau of Reclamation	County:	Yuma
AWPF Funding:	$583,276.00	Completion Date:	July 2001

Project Description: This project was to restore streamflow to small backwater channels and about 50 acres of dried-out wetlands along the lower Colorado River. Areas were revegetated with native riparian plant species. The Grantee's goal was to create higher quality riparian and aquatic habitat along this reach of the river.

96-0012WPF: Eagle Creek Watershed and Riparian Stabilization

Map #:	100		
Grantee:	James F. Holder	County:	Greenlee
AWPF Funding:	$80,626.00	Completed:	December 1999

Project Description: This project was to improve the watershed, upland range and riparian community of Eagle Creek through the installation of fencing, grazing management, and the expansion of an existing pipeline to distribute water sources throughout the upland area.

96-0013WPF: Happy Valley Riparian Area Restoration Project

Map #:	124		
Grantee:	Coronado National Forest	County:	Pima
AWPF Funding:	$64,697.00	Completed:	July 1999

Project Description: The Paige Creek riparian area is a unique, large riparian gallery located on the east side of the Rincon Mountains. The Grantee fenced the riparian area, created upland water sources for ungulates, constructed an instream structure to reduce water velocity and constructed a pipe barrier fence to restrict vehicle access to sensitive areas.

96-0014WPF: Klondyke Tailings Response Strategy Analysis

Map #: 113

Grantee: Arizona Department of Environmental Quality

County: Graham

AWPF Funding: $90,000.00

Completed: August 1998

Project Description: In this project, a team of scientists led by Arizona Department of Environmental Quality collected data to determine the extent of impact on Aravaipa Creek from runoff or leaching of contaminated mine tailings at the Klondyke tailings pile. The team developed a response strategy to determine the best methods of treating the tailings pile to reduce or prevent groundwater and stream contamination by leaching, runoff or erosion of the tailings into the stream.

96-0015WPF: Abandonment of an Artesian Geothermal Well

Map #: 127

Grantee: Smithville Canal Company

County: Graham

AWPF Funding: $113,360.00

Completed: December 1999

Project Description: The Grantee capped a deep, artesian geothermal well, near the Gila River, north of Thatcher Arizona. Discharge from the well was highly saline and was degrading soils and plants in the vicinity and possibly degrading downstream water quality in the Gila River. The Grantee will continue monitoring the site to evaluate changes due to well abandonment.

96-0016WPF: The 'Ahakhav Tribal Preserve

Map #: 92

Grantee: Colorado River Indian Tribes

County: La Paz

AWPF Funding: $931,477.00

Completed: April 2000

Project Description: The Colorado River Indian Tribes re-established riparian and wetland habitat in a 110 acre area of the 'Ahakhav Tribal Preserve. The Grantee re-established fish and wildlife riparian and wetland habitat by dredging some historic backwater river channels, revegetating native riparian vegetation and establishing a monitoring program to ensure successful restoration of the riparian habitat along the Colorado River.

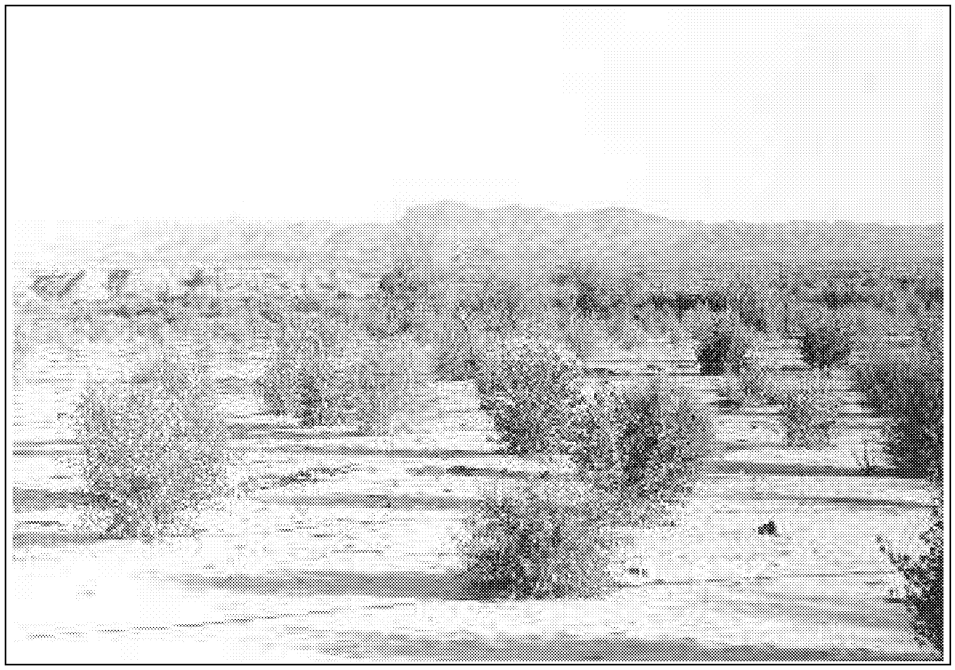

Figure 9. Revegetation site at the 'Ahakav Tribal Preserve. 96-0016WPF

96-0017WPF: Big Sandy River Riparian Project
Map #: 93
Grantee: Bureau of Land Management County: Mohave
AWPF Funding: $92,000.00 Completed: January 2000

Project Description: This project was to help restore an approximately 8 mile perennial reach along the Big Sandy River south of the Kingman Resource Area near Alamo Lake. Under this grant, pasture fencing was constructed to help control livestock. Additionally upland livestock water sources were developed to facilitate the management of livestock grazing outside of the riparian area.

96-0018WPF: San Carlos Spring Project
Map #: 122
Grantee: San Carlos Apache Tribe County: Graham
AWPF Funding: $131,540.00 Completed: Cancelled by Grantee

Project Description: Prior to cancellation, the Grantee fenced 8 springs on the San Carlos Apache Reservation to protect the springs from grazing and trampling by livestock. Pipelines and water troughs were installed to provide water to the livestock away from the spring sites.

96-0019WPF: Response of Bebb Willow to Riparian Restoration
Map #: 94
Grantee: Northern Arizona University
County: Coconino
AWPF Funding: $33,752.00
Completed: May 1999

Project Description: This project was to restore water flow through a decadent Bebb willow ecosystem, and then quantify and compare the response of the plant community to the water flow. The project intended to improve the understanding of the structure, function and dynamics of a watershed and its associated terrestrial and riparian ecosystems.

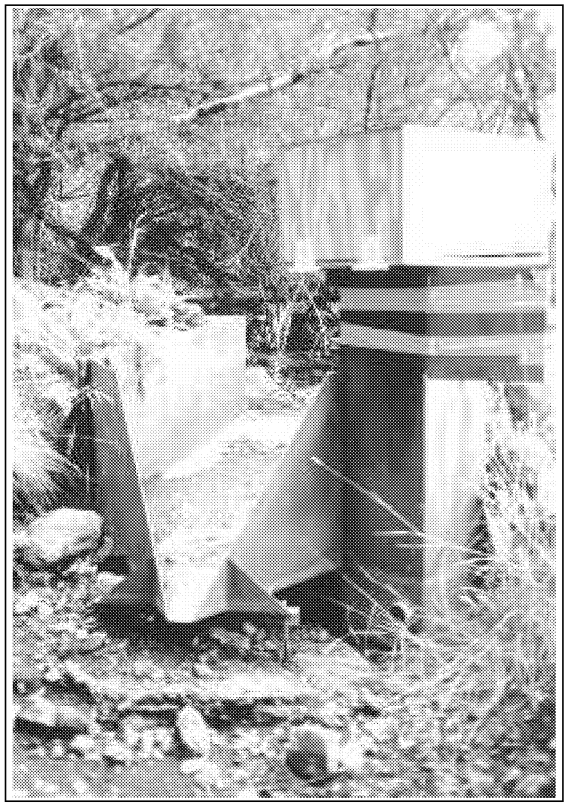

Figure 10. Flume installed to measure stream flow at Hart Prairie. 95-005WPF.

96-0020WPF: Cienega Creek Stream Restoration
Map #: 135
Grantee: Bureau of Land Management
County: Pima
AWPF Funding: $210,700.00
Completed: October 1999

Project Description: This project was to remove an agricultural diversion canal that was no longer used, and re-establish flow through the Cienega Creek channel. Volunteers from Sonoita and Tucson collected and maintained plant material

salvaged from the project site and revegetated areas disturbed during project activities.

96-0021WPF: Riparian Vegetation and Stream Channel Changes Associated with Water Management along the Bill Williams River

Map #: 151
Grantee: Arizona State University
County: Mohave
AWPF Funding: $14,788.00
Completed: November 1999

Project Description: The project produced quantitative data on the relationship between streamflow and historic changes in the riparian community and channel morphology along Bill Williams River below Alamo Dam. This information will be used in an ongoing effort to define reservoir operation regimes that will ensure protection of the riparian habitat downstream of Alamo Dam.

96-0022WPF: Saffell Canyon and Murray Basin Watershed Restoration Project

Map #: 103
Grantee: Apache Sitgreaves National Forest
County: Apache
AWPF Funding: $24,316.00
Completed: October 1998

Project Description: The objectives of this project were to restore watershed health and improve water quality in Murray Basin and Saffell Canyon. The Grantee determined the best methods to reduce and reverse soil erosion in the watershed. The Murray Basin and Saffell Canyon watershed have been severely damaged by past management practices.

Figure 11. Site of potential road failure due to bank erosion, Canyon del Muerto. 96-0025WPF

96-0023WPF: Watershed Restoration at the Yuma Conservation Gardens

Map #: 115
Grantee: Yuma Conservation Garden
County: Yuma
AWPF Funding: $31,050.00
Completed: March 1999

Project Description: This project was to renovate a five acre model watershed that is used as an outdoor classroom at the Yuma Conservation Garden (YCG). The YCG is a 28-acre natural area established in the 1950's for education and recreational purposes. The project area was established in 1962, and is used to teach the public about watershed issues in the Yuma area.

96-0025WPF: Tsaile Creek Watershed Restoration Demonstration

Map #: 108
Grantee: The Navajo Nation
County: Apache
AWPF Funding: $152,775.00
Completed: July 2000

Project Description: This project was to develop six watershed restoration projects with concurrent workshops to demonstrate riparian restoration concepts to local residents, tribal employees and resource conservation professionals. The projects will focus on biological restoration approaches. The Grantee will use these projects to build community support for broader watershed restoration efforts.

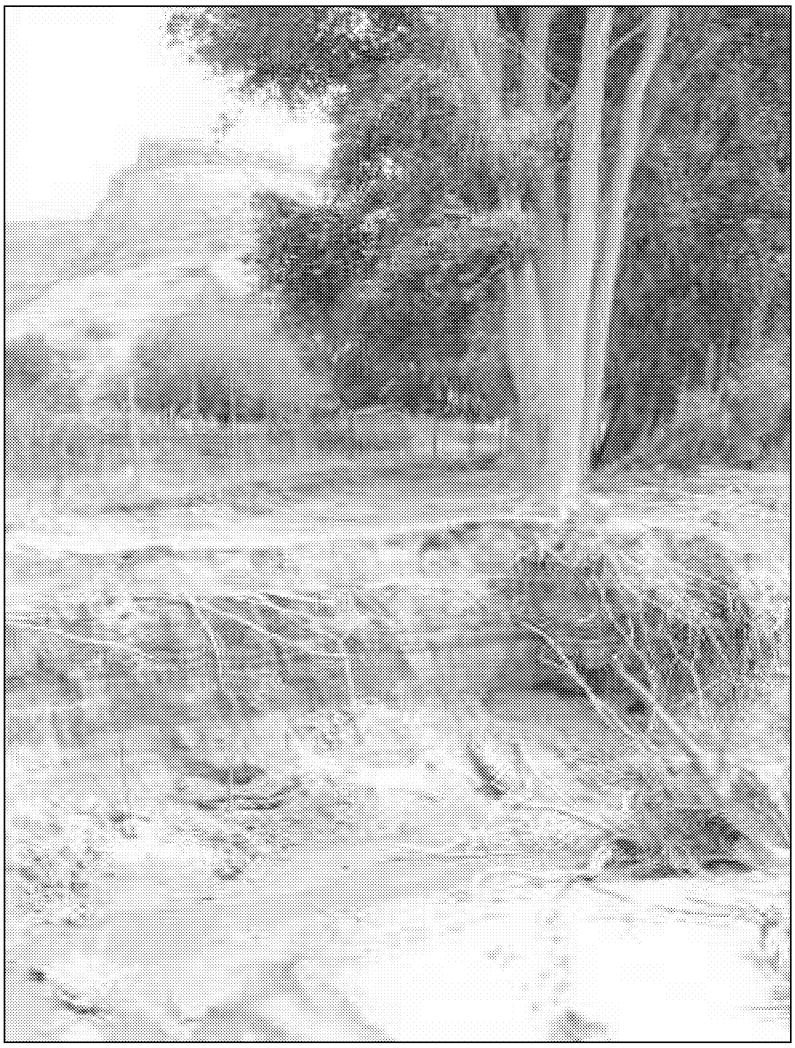

Figure 12. Complete road wash out on Tsaile Creek Watershed. 96-0025WPF

96-0026WPF: Riparian Restoration on the San Xavier Indian Reservation Community

Map #: 133
Grantee: San Xavier Indian Reservation
County: Pima
AWPF Funding: $591,319.00
Completed: May 1999

Project Description: The San Xavier District of the Tohono O'odham Tribe evaluated various options for riparian restoration on their lands. The entire community had an opportunity to be involved in the planning and decision process. Sites for riparian restoration were chosen based on physical/biological conditions and community preference. A restoration plan was developed and will be implemented.

AWARDED DURING FY '98

97-027WPF Lyle Canyon Allotment Area Restoration Project

Map #: 153
Grantee: Byrd Lyndsey
County: Cochise, Santa Cruz
AWPF Funding: $55,476.33
Completion Date: October 2001

Project Description: The purpose of the Lyle Canyon project is to restore and protect the riparian areas on the Lyle Canyon Allotment through the installation of a variety of range

improvements, including fences and upland water developments that will better distribute cattle grazing in the upland portions of the allotment, and away from the riparian areas. The Grantee and the University of Arizona Cooperative Extension Office have developed a monitoring plan to record the condition of riparian and upland habitats on the Lyle Canyon Allotment. The monitoring plan includes a quantitative assessment of the riparian and upland vegetation, a "Proper Functioning Condition" assessment of the riparian areas, and photo point monitoring. If livestock grazing management changes are indicated by the monitoring data the Grantee will coordinate with the U.S. Forest Service to incorporate those changes into the Allotment Management Plan.

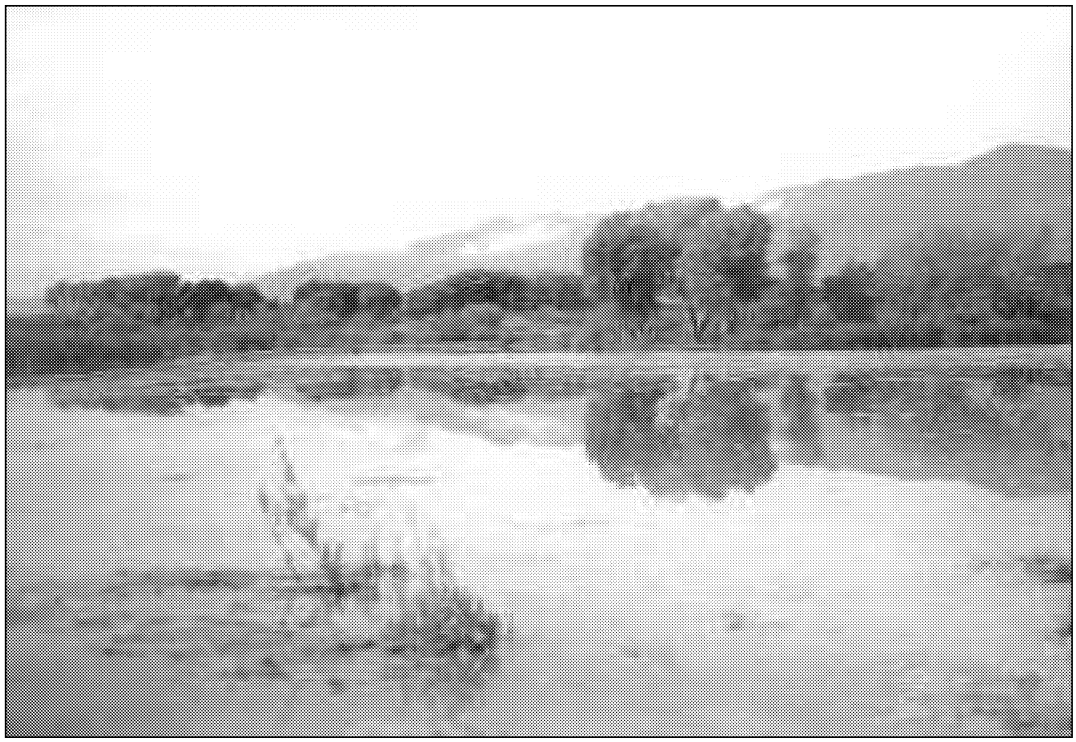

Figure 13. This ephemeral pond was created in Discovery Park with the help of impoundment structures that were designed to catch storm runoff.
97-028 WPF

97-028WPF:	**Creation of a "Reference" Riparian Area in the Gila Valley**		
Map #:	155		
Grantee:	Mt. Graham International Science & Culture Foundation	County:	Graham
AWPF Funding:	$182,000.00	Completed:	May 2000

Project Description: The purpose of this project was to create a riparian system in a highly visible area along a tributary to the environmentally significant Gila River. The creation of this area in the Gila Valley provides on-site riparian benefits to wildlife and the watershed. The project had a significant outreach and educational component that explained the benefits of establishing riparian areas. The Grantee also provided information on techniques used to land management agencies and to the public.

97-029WPF: Demonstration Enhancement of Pueblo Colorado Wash at Hubbell Trading Post

Map #: 159
Grantee: National Park Service, Hubbell Trading Post National Historic Site
County: Apache
AWPF Funding: $91,110.00
Completion Date: May 2001

Project Description: The Hubbell Trading Post National Historic Site proposed to re-establish, enhance and conserve one-half mile of the Pueblo Colorado Wash within the boundaries of the Historic Site. The stream channel was restored using low-tech instream structures to restore meanders and pools. The objective for installing these structures was to slow stream flows so that sediment will be deposited in point bars that will eventually support riparian vegetation. Invasive plant species were removed from the riparian area. The stream channel and riparian areas were revegetated with appropriate native species such as native reed, willows and cottonwoods. Restoration efforts and water quantity were evaluated to determine changes that resulted from project activities. Hydro-meteorological monitoring was also conducted to establish hydrological baseline data for the wash.

97-030WPF: Walnut Creek Center for Education and Research - Biological Inventory

Map #: 160
Grantee: Yavapai College
County: Yavapai
AWPF Funding: $50,580.00
Completion Date: May 2001

Project Description: The Walnut Center for Education and Research is located approximately 35 miles northwest of Prescott in the Williamson Valley. The site is being leased from the Prescott National Forest under a special use permit. The Walnut Creek Center for Education and Research is a partnership comprised of staff from NAU, Prescott College, Sharlot Hall Museum and Yavapai College. The purpose of the project was to conduct a two-year inventory of the 280-acre site. Specifically, inventories of vegetation, birds, mammals and reptiles were conducted and physical components of stream geomorphology, topography and soils were evaluated. Upon completion, these data were used to establish a baseline condition for the site's physical and biological resources as a precursor to the development of a long-term management and operational plan for the Center site.

97-031WPF: Lincoln Park Riparian Habitat Project (fka: Atturbury Wash Project)

Map #: 161
Grantee: City of Tucson Water Dept.
County: Pima
AWPF Funding: $154,580.00
Completed: April 2003

Project Description: The City of Tucson's Atturbury Wash Project will establish a sustainable riparian habitat, approximately five acres in size along a one-half mile long tributary of the Atturbury Wash within Lincoln Regional Park. The water source for the project is secondary effluent produced at the City's Roger Road Reclaimed Wastewater Treatment Plant. The purpose of the project is to enhance and maintain an existing riparian habitat with periodic releases of reclaimed water.

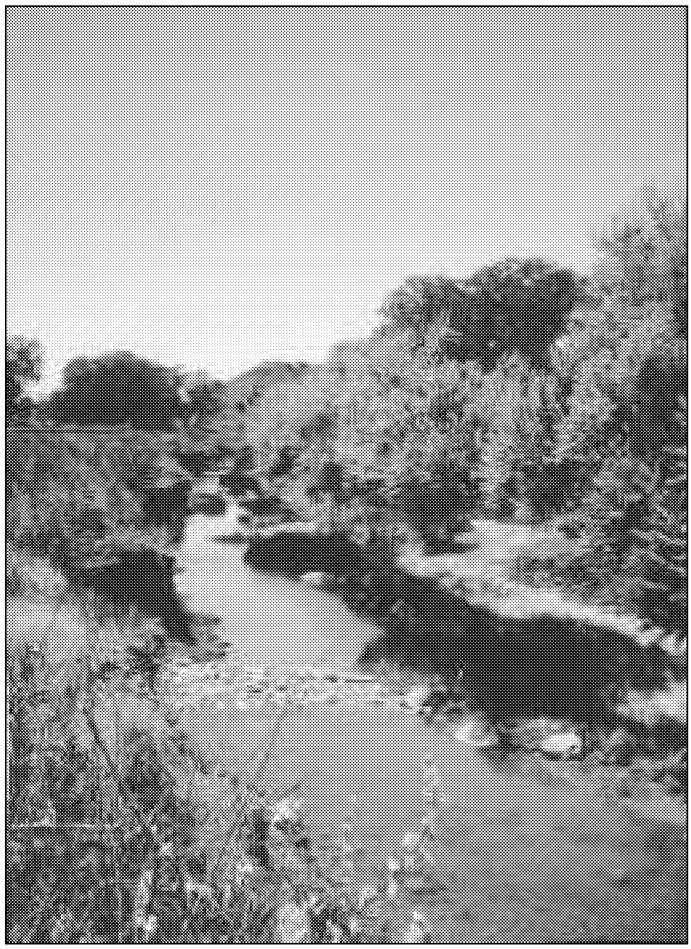

Figure 14. Low-tech instream structures were installed to restore meanders and pools along a portion of the Pueblo Colorado Wash at the Hubbell Trading Post National Historic Site. 97-0029WPF.

97-032WPF: 'Ahakhav Tribal Preserve - Deer Island Revegetation

Map #:	162		
Grantee:	Colorado River Indian Tribes	County:	La Paz
AWPF Funding:	$228,800.00	Completed:	February 2000

Project Description: The 'Ahakhav Tribal Preserve on the Colorado River Indian Reservation is approximately 1042 acres in size. The construction of dams and channelization of the Colorado River as well as the introduction of the exotic and invasive saltcedar has left the Preserve nearly devoid of cottonwoods and willows. Because saltcedar does not provide adequate cover, food and thermal protection, this habitat type supports a significantly lower diversity of insects, birds and other wildlife. The Grantee removed low-quality exotic plants near the Deer Island backwater, and revegetated the site with native plants including cottonwood, willow, mesquite, wolfberry and four-wing saltbush.

97-033WPF: Proctor Vegetation Modification

Map #: 163

Grantee: Coronado National Forest | County: Pima

AWPF Funding: $11,487.00 | Completion Date: March 2001

Project Description: This project site is about 200 acres of upland area along Madera Canyon within Pima County. The project goal was to reduce the upland mesquite component of the existing overstory with minimal harm to other tree species and to restore the herbaceous understory to a condition dominated by native perennial grass species. There was little perennial grass understory at this site due to shading from the excessive mesquite overstory. Perennial grasses are important to soil stability by reducing soil erosion and the resulting turbidity in streams, allowing beneficial water retention, litter development and organic matter levels within the soils, and improving rainfall percolation into the ground. The project removed upland mesquite trees with main stem diameters less than 5 inches, temporarily restricted vehicle use in the area for several years, enforced livestock grazing standards and guidelines and refurbished a stockpond to draw cattle away from the treatment and regrowth site.

97-034WPF: Oak Tree Gully Stabilization

Map #: 164

Grantee: Coronado National Forest | County: Pima

AWPF Funding: $42,491.00 | Completion Date: April 2001

Project Description: The advancement of headcuts in the Oak Tree Canyon and Empire Gulch were impacting Cienega Creek through erosional activities. Cienega Creek has been designated as a Unique Water, under the Clean Water Act and it was believed that headcutting in the tributaries was leading to increased turbidity in the Creek. The headcuts appeared to be deteriorating primarily as a result of the presence of the Forest Service road and unauthorized vehicular use throughout the area. The project involved the treatment of 30 headcuts in the Oak Tree Canyon and Empire Gulch areas through reshaping of the gullies and mechanisms designed to decrease flow velocity and energy to reduce head- and side-cutting. Monitoring of the headcuts and erosional activity was performed throughout the project duration and will continue long-term using photo points, and examining structural integrity and channel morphology.

97-035WPF: Watershed Improvement to Restore Riparian and Aquatic Habitat on the Muleshoe Ranch CMA

Map #: 165

Grantee: The Nature Conservancy | County: Cochise

AWPF Funding: $128,315.00 | Completion Date: May 2001

Project Description: The purpose of this project was to restore riparian and aquatic habitat in four perennial streams on the Muleshoe Ranch Cooperative Management Area (CMA) by restoring watershed vegetation and function. This was accomplished by restoring fire as a natural process in the watershed using prescribed burns. The Grantee proposed to continue grazing rest until vegetation recovery occurs. A comprehensive monitoring program will be maintained for at least ten years, including monitoring of short term effects of prescribed burns. Fencing was constructed along 1.5 miles within the project area.

97-036WPF: Stable Isotopes As Tracers of Water Quality Constituents in the Upper Gila River

Map #:	166		
Grantee:	Arizona Geological Survey	County:	Cochise, Graham, Greenlee
AWPF Funding:	$27,338.00	Completed:	July 1999

Project Description: Water quality issues are becoming increasingly important in the upper Gila River drainage area. Decades of water quality measurements have documented the concentrations of total dissolved solids (TDS) in the Gila River and groundwater, but the precise sources (natural and human) of the TDS were not known. This project was to identify the sources and conveyance points of dissolved solids entering the upper Gila River through the use of naturally occurring stable isotopes. The study area encompassed approximately 200 square miles in southeastern Arizona. Based on the results of the study, the Grantee developed recommendations for mitigation and further studies in the region.

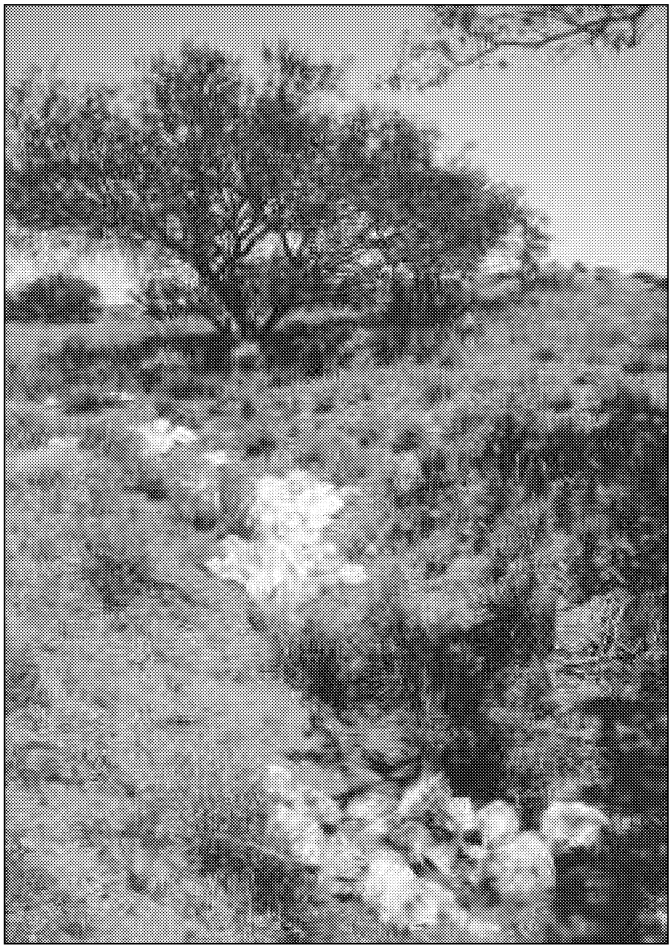

Figure 15. Headcut treatments in Oak Tree Canyon designed to decrease flow velocity and energy. 97-034WPF

97-037WPF: Talastima (Blue Canyon) Watershed Restoration Project

Map #: 168
Grantee: The Hope Tribe
County: Coconino, Navajo
AWPF Funding: $310,192.00
Completion Date: May 2001

Project Description: The purpose of this project was to restore the Talastima watershed, including almost 8,000 acres containing 19 miles of streams and wetlands on Hopi lands. Restoration measures included a tamarisk and Russian olive removal demonstration project, revegetation of native riparian species, erosion control using straw bales, completion of livestock exclosures with fencing, installation of a monitoring well and seven drive-point wells, and a study of road impacts on riparian health. Monitoring was conducted using on-ground data collection combined with remote sensing techniques. Monitoring also was conducted to assess the success of tamarisk and Russian olive removal, the success of revegetating with native wetland and riparian vegetation, the effects of revegetation activities on groundwater levels and quality and surface water flows and quality, and the effects of restoration activities on raptors and neotropical migratory birds in the project area.

97-038WPF: Tres Rios Wetland Heavy Metal Bioavailability Design for Denitrification and Microbial Water Quality

Map #: 171
Grantee: City of Phoenix
County: Maricopa
AWPF Funding: $117,728.00
Completion Date: December 2001

Project Description: The purpose of this project is to investigate three issues identified during operation of the Tres Rios Wetland Demonstration Project: 1) Are heavy metals in the wetlands bioavailable and are there operational strategies that would mitigate or exacerbate this phenomena 2) What is the contribution of autotrophic bacteria to the overall denitrification efficiency of the wetland and can this information be used to better estimate wetland surface area requirements, and 3) Are bacteria/pathogen concentrations due to wildlife inputs or re-growth, and what is the survivability of pathogens in a constructed wetland. Sampling and analysis of water, sediment, vegetation and fish tissue will be conducted to achieve the project objectives, and the findings of this study will be presented in an interpretative final report.

97-040WPF: Bingham Cienega Riparian Restoration Project

Map #: 175
Grantee: Pima County Flood Control District
County: Pima
AWPF Funding: $84,679.00
Completion Date: April 2001

Project Description: The objective of the project was to restore native riparian vegetation to 50 acres of abandoned agricultural fields at Bingham Cienega along the San Pedro River. Planting areas were delineated based on site hydrology factors such as groundwater gradients. Plant species were selected based on published relationships between riparian plant distribution and depth-to-groundwater. Three planting areas were delineated and planted to restore different riparian community types.

97-041WPF: Altar Valley Watershed Resource Assessment

Map #: 178
Grantee: Altar Valley Conservation Alliance
County: Pima, Santa Cruz
AWPF Funding: $88,730.00
Completion Date: October 2000

Project Description: The Pima Natural Resource Conservation District, in association with the Altar Valley Conservation Alliance, conducted an assessment of the Altar Valley natural resources and identified problems and areas for improvement. The Grantee researched historic conditions, described existing conditions, conducted detailed vegetation mapping, and produced community outreach materials. The end product was an action plan for the restoration of the watershed which identifies and prioritizes problem areas needing attention, describes feasible remedies, and identifies the potential financial means to implement the appropriate land treatments, ranch conservation improvements and resource management changes.

97-042WPF: Queen Creek Restoration & Management Plan

Map #: 180
Grantee: Town of Superior
County: Pinal
AWPF Funding: $207,595.00
Completed: September 1999

Project Description: A Queen Creek Restoration and Management Plan was developed for the Queen Creek corridor that extends from the headwaters on Tonto National Forest, through the Town of Superior to the Boyce Thompson Southwestern Arboretum. The plan addresses restoration of stream flow and riparian vegetation, and technical studies were conducted to determine riparian vegetation water needs and channel flood conveyance capacity. A Committee of Stakeholders, including affected landowners and other interested entities was established and two public workshops were conducted.

97-044WPF: San Pedro River Preserve Riparian Habitat Restoration Project

Map #: 185
Grantee: The Nature Conservancy
County: Pinal
AWPF Funding: $336,127.00
Completion Date: August 2001

Project Description: The intent of this project was to enhance and protect existing riparian forest along three miles of the San Pedro River. The Grantee restored native grassland communities on the near river slopes and terraces, implemented measures as needed to stabilize river banks, and re-established native riparian vegetation in areas of defunct aquaculture ponds and agricultural fields on a site encompassing 860 acres. The Grantee also developed and demonstrated new techniques for restoring abandoned agricultural fields to riparian habitat.

97-045WPF: Santa Cruz Headwaters Project

Map #: 188
Grantee: San Rafael Cattle Co.
County: Santa Cruz
AWPF Funding: $100,445.00
Completion Date: December 2001

Project Description: The purpose of this project is to restore and maintain seven miles of riparian and wetland corridor of the Santa Cruz River headwaters. Fences and water developments will be constructed to control and manage livestock grazing in the riparian corridor.

AWARDED DURING FY '99

98-046WPF: EC Bar Ranch Water Well Project
Map #: 189
Grantee: James W. Crosswhite County: Apache
AWPF Funding: $19,800.00 Completion Date: March 2002

Project Description: The purpose of this project is to develop an alternative water source for livestock and wildlife in order to eliminate the need for the animals to utilize a water gap in a fenced section of Nutrioso Creek, a degraded perennial stream. This objective will be met through the drilling of two water wells, installation of solar pumps, and distribution of water to tanks.

98-047WPF: Upper Verde Adaptive Management Unit
Map #: 190
Grantee: Almida Land and Cattle Company County: Yavapai
AWPF Funding: $115,300.00 Completion Date: March 2002

Project Description: To maintain continued health of the riparian habitat along the Verde River, the Almida Land & Cattle Co. will develop a livestock grazing system that excludes cattle from the river. The project will fence-out the riparian corridor along the river and provide water replacement facilities uplands. To achieve this, the Grantee will build six miles of 4-strand barbed wire fencing, construct seven miles of underground pipeline, install twelve drinkers, and two 20,000 gallon storage tanks.

98-048WPF: Verde Riparian Action Plan
Map #: 192
Grantee: Verde NRCD County: Yavapai
AWPF Funding: $15,000.00 Completion Date: June 2002

Project Description: The Verde NRCD will receive $5,000 a annually for three years specifically for the rental of a backhoe and operator to dig trenches and holes for planting cottonwood and willow trees along the Verde River and it's perennial tributaries. Since 1991, the Verde NRCD has maintained a riparian species nursery and each year trees are harvested and sold or planted. This project will support the NRCD Riparian Species Planting Program efforts to restore riparian habitat of the Verde River.

Figure 16. Two 20,000 gallon storage tanks to provide water replacement facilities upland. 98-047WPF

98-049WPF: Empire/Cienega/Empirita Fencing Project

Map #: 193

Grantee: Empire Ranch | County: Pima

AWPF Funding: $58,850.00 | Completion Date: December 2002

Project Description: The purpose of this project is to develop several ranch improvements in addition to improved livestock management which will benefit the health of the Cienega Creek ecosystem. These improvements include; extending an existing fence, separating sacaton benches, creating a livestock exclosure for monitoring, realigning a degraded road, and creating an alternate wildlife/livestock water source by fitting an existing well.

98-050WPF: Watershed Restoration of a High-Elevation Riparian Community

Map #: 197

Grantee: Northern Arizona University | County: Coconino

AWPF Funding: $286,275.00 | Completion Date: August 2002

Project Description: The intent of this project is to modify upland watershed conditions to increase and sustain water flows into the unhealthy down slope riparian community at Hart Prairie in Northern Arizona. Previous AWPF-funded riparian restoration work at this site improved moisture conditions by successfully increasing surface discharge and groundwater storage, however monitoring results indicate incomplete recovery due to a need to address up slope watershed conditions. The Grantee will conduct the following to increase and sustain water flows: reduce the density of pines encroaching the wet meadow by tree thinning and

prescribed burns, construct fencing to manage grazing of large ungulates, reduce/ eliminate stock tanks, restore stream channels in the upland watershed, and continuing and expanding watershed, vegetation, stream flow and fluvial geomorphology monitoring.

98-051WPF: Evaluation of Carex Species for Use in Riparian Restoration

Map #:	198		
Grantee:	Northern Arizona University	County:	Coconino
AWPF Funding:	$47,907.00	Completion Date:	July 2001

Project Description: This research project developed transplant guidelines for the use of sedges in riparian restoration projects. The Grantee 1) evaluated the performance of transplanted plugs of various sizes and species of sedges, under three different grazing regimes, 2) quantified the herbaceous species composition and arrangement of grazed and ungrazed plant communities at two study sites, and 3)evaluated the effects of water stress and grazing on transplanted plugs of sedges under greenhouse conditions. Two montane riparian study sites were evaluated, Hoxworth Springs and Buck Springs. Each site contains healthy, functional, and degraded channel reaches. Hoxworth Springs is the site of an ongoing AWPF grant to study the performance of channel restoration work and to assess the impacts of various grazing regimes. The Buck Springs site is also in the Coconino National Forest and was monitored from 1992 until 1996 by the Rocky Mountain Research Station.

98-052WPF: Tritium as a Tracer of Groundwater Sources and Movement in the Upper Gila Drainage

Map #:	200		
Grantee:	Arizona Geological Survey	County:	Graham, Greenlee
AWPF Funding:	$41,028.00	Completed:	July 2000

Project Description: The purpose of this project was to evaluate whether or not a radioactive isotope, tritium, can be used to distinguish between the various sources of groundwater influencing the composition (and salinity) of the Gila River. Tritium can be used to determine the age of groundwater. This study assessed the utility of using tritium to determine the degree of mixing between deep groundwater in contact with highly soluble salts in the basin-fill sediments, and shallow groundwater – a mixture of subflow from tributaries, infiltration of Gila River water and possible infiltration of irrigation water.

98-054 WPF: Fluvial Geomorphology Study and Demonstration Projects to Enhance and Restore Riparian Habitat on the Gila River from the New Mexico Border to the San Carlos Nation

Map #:	203		
Grantee:	Graham County	County:	Graham, Greenlee
AWPF Funding:	$449,872.00	Completion Date:	September 2002

Project Description: The purpose of this project is to conduct a fluvial geomorphology study of 100 miles of the Gila River from the New Mexico border to the San Carlos Nation border. This study will form the basis for the development of demonstration projects which will be implemented at optimum sites along the river to restore riparian vegetation, reduce flood velocity, and create a stable channel.

98-055WPF: Horseshoe Allotment: Verde Riparian Project II

Map #: 206
Grantee: George and Sharon Yard | County: Yavapai
AWPF Funding: $85,436.00 | Completion Date: December 2001

Project Description: The Grantees currently have a cattle operation on deeded and U.S. Forest Service land along the Verde River. The goal of the project is to benefit 3.75 miles of the Verde River by creating an off-river pasture through development of a currently dry pasture. This goal will be achieved through the construction of pasture division fencing, river fencing, and construction of a waterline consisting of 5 cattle drinkers, 3 small wildlife drinkers, and 2 storage tanks.

98-057WPF: Upper Verde Valley Riparian Area Historical Analysis

Map #: 208
Grantee: Northern Arizona University | County: Yavapai
AWPF Funding: $44,019.00 | Completion Date: December 2000

Project Description: The goal of this research project was to compare the historical riparian system of a seven mile reach along the Verde River with the current system to determine what changes have occurred in riparian vegetation. The Grantee assessed the relationships between vegetation changes and climatic factors, human land use activities, and varying groundwater levels to determine which vegetation changes were caused by human activities in the watershed. Based on the results of this study, Northern Arizona University will make recommendations for preservation, restoration, and enhancement of riparian habitat.

98-058WPF: Effects of Removal of Livestock Grazing on Riparian Vegetation and Channel Conditions of Selected Reaches on the Upper Verde River

Map #: 209
Grantee: Rocky Mountain Research Station | County: Yavapai/Coconino
AWPF Funding: $116,500.00 | Completion Date: Terminated

Project Description: The Grantee was to conduct a 3 year study to determine changes in riparian vegetation, channel characteristics, and selected water quality attributes resulting from the removal of livestock grazing on allotments in the headwaters of the Verde River. The objectives of the study were to: (1) determine the changes in vegetation resulting from removal of livestock grazing on riparian habitats, (2) determine changes in channel geomorphology, macro-invertebrates and substrates, (3) establish a long-term database, and (4) compare resultant changes in vegetation/channel attributes to available historic databases. Cattle have been removed from these allotments either voluntarily or under mandate by the Prescott National Forest.

98-059WPF: Verde River Headwaters Riparian Restoration Demonstration Project

Map #: 212
Grantee: Northern Arizona University | County: Coconino
AWPF Funding: $148,429.00 | Completion Date: September 2002

Project Description: The purpose of this project is to restore the channel and riparian vegetation Along 2600 ft. of a channelized portion of a perennial stream that flows in the Clover Springs valley. The proposed restoration area is located in the Coconino National Forest about 5.5 miles south of Clint's Well on Hwy. 87. Specific project objectives include: (1) development and implementation of a channel stabilization and wetland protection plan for the Clover Springs reach. This will include removal of existing channel structures, reshaping and redirecting the channel and use of low impact structures to encourage natural channel stability; (2) determining the causative factors and timing of aggradation and incision in the reach of concern through investigation of past floodplain activity, radiocarbon dating and description of sediments, tree ring dating and historic photos; (3) developing an information kiosk or signage at the site to explain the role of meadow ecosystems, historic disturbances, current conditions, desired conditions, and restoration techniques.

98-061WPF: Watershed Enhancement on the Antelope Allotment

Map #:	214		
Grantee:	Foremaster Revocable Trust	County:	Mohave
AWPF Funding:	$137,307.00	Completion Date:	February 2002

Project Description: The Antelope Allotment on the Arizona Strip consists of approximately 17,655 acres of which 40 acres is privately owned, 16,325 is Bureau of Land Management (BLM) land, and 1,300 acres of Arizona State Land Department land. The Grantees will use AWPF monies to install range improvements such as a submersible pump and generator, pipeline, watering troughs for livestock and wildlife, and a water storage tank. These improvements will allow for the implementation of a grazing system consistent with the Natural Resource Conservation Service Conservation Plan and BLM Allotment Management Plan.

98-062WPF: Partnership for Riparian Conservation in NE Pima Co. II (PROPIMA II)

Map #:	215		
Grantee:	Rincon Institute	County:	Pima
AWPF Funding:	$44,313.00	Completion Date:	May 2002

Project Description: The Grantee will work with private landowners along Tanque Verde Creek and Rincon Creek on three separate projects. The first project will use AWPF funds to design a river-friendly erosion control structure that enhances riparian vegetation reestablishment. Project intent is to stem the loss of property, encourage bank stabilization, and promote aggradation which will enhancing natural regeneration. The second project involves the restoration of riparian vegetation on 2 acres of former pasture land. Funding will be used for site characterization study, fencing, seed collection and propagation of revegetation materials, irrigation line construction, and site preparation and plantings. The final project will be the implementation of long-term riparian conservation planning and public education.

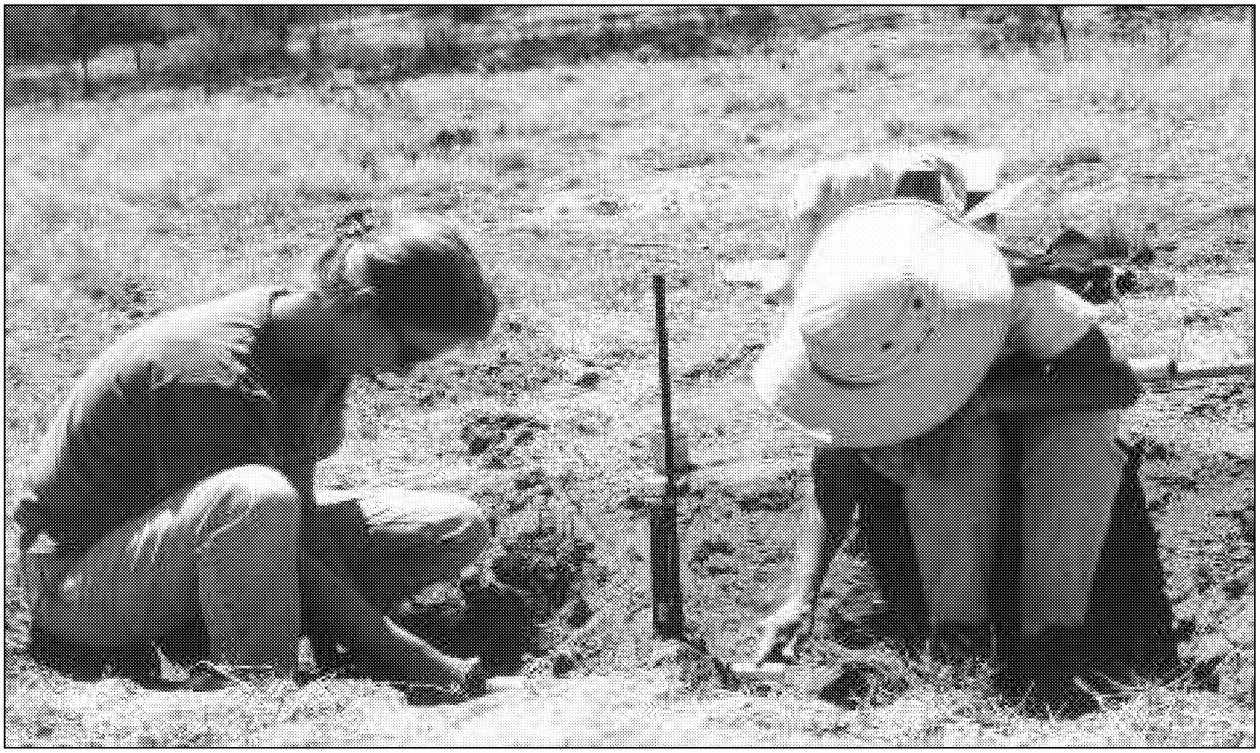

Figure 17. Rincon Institute Staff installing irrigation control valves at the Llewellyn Revegetation Site. 98-062WPF

98-066WPF: Hay Mountain Watershed Rehabilitation

Map #: 220

Grantee: Ruth Evelyn Cowan | County: Cochise

AWPF Funding: $116,525.00 | Completion Date: August 2002

Project Description: The Grantee is working in conjunction with the Natural Resource Conservation Service, the Arizona State Land Department, the Douglas Whitewater Draw Conservation District, Rocky Mountain Elk Foundation, and the Game and Fish Department to restore and rehabilitate the Hay Mountain Watershed (approximately 1000 acres) on the NI Ranch. The watershed is located northwest of Douglas in the southeastern part of the state. The site suffered from over-grazing, resulting in the reduction of native grasses and subsequent increases in overland flow. The ephemeral streams have increased width-depth ratios, increased sediment transport and some gullying within the larger arroyos. AWPF monies will be used to install four miles of pipelines and three 10,000 gallon water storage tanks with drinkers, rip and seed native grasses, reshape and recontour two erosion sites, and to install a variety of flood control structures. These watershed improvements are designed to reduce flooding and erosion by increasing infiltration of rainfall into the soil.

AWARDED DURING FY '00

99-067WPF: EC Bar Ranch Wildlife Drinker Project
Map #: 221
Grantee: James W. Crosswhite County: Apache
AWPF Funding: $30,500.00 Completion Date: May 2003

Project Description: The project purpose is to fund four wildlife (elk) drinking water sources along the west and east sides of Nutrioso Creek in order to deter elk from using the creek and impacting the riparian vegetation. The Grantee states that elk are a threat to the recovery of the Nutrioso Creek ecosystem. Livestock management of the area has recently been improved by the addition of upland water sources and livestock fencing. Livestock will continue to use the riparian area under a management plan formulated in conjunction with the NRCS. Project funding will be used to purchase and install conveyance pipe, drinkers, etc. at 4 locations, with water to be provided from an AWPF previously funded will. The project-funded features are on private lands.

99-068WPF: Lower Cienega Creek Restoration Evaluation Project
Map #: 222
Grantee: AZ Dept. of Environmental Quality (ADEQ) County: Pima
AWPF Funding: $83,272.00 Completion Date: June 2003

Project Description: The purpose of the lower Cienega Creek Restoration Evaluation Project is to survey Cienega Creek to develop data to identify those physical indicators that will be used to better manage the streams and rivers of the state. The data will be used by ADEQ to develop Total Maximum Daily Load measures. The project will assist in a better understanding of the erosive processes of dryland streams as erosion and sedimentation are major problems throughout the state.

99-069WPF: Riparian and Watershed Enhancements of the A7 Ranch – Lower San Pedro River
Map # 223
Grantee: City of Tucson County: Pima/Cochise
AWPF Funding: $486,197.45 Completion Date: February 2003

Project Description: The Grantee proposes a series of grazing management range improvements that will facilitate the efficient use of the A7 Ranch as a grass-bank for the Redington NRCD and other resident ranch operators along the lower San Pedro River. The A7 Ranch will be available to area ranchers for use by their cattle in accordance with approved pasture agreements. A committee will be formed to determine usage priority, taking into consideration existing plans and future watershed goals.

99-070WPF: Lyle Canyon Allotment Riparian Area Restoration Project --- Phase 2
Map #: 224
Grantee: Byrd B. Lindsey County: Cochise/Santa Cruz
AWPF Funding: $214,860.00 Completion Date: To be determined

Project Description: This is a very ambitious livestock management application. The Grantee proposes to construct 3 new wells, 28 miles of pipeline, 39 water troughs, 1-3,000 gallon water tank, and 3-12,000 gallon water storage tanks to better manage livestock on the grazing allotments within the Coronado National Forest. The application is for additional facilities on the Lyle Canyon Allotment, which has some features constructed on it that were previously funded by the AWPF, and on the Canelo Allotment. Mr. Lindsey is also applying to the U.S. Forest Service for the addition of the Collins Allotment, which is directly south of the Lyle Canyon Allotment, to his grazing permit.

99-071WPF: Protection of Spring and Seep Resources of the South Rim, Grand Canyon National Park by Measuring Water Quality, Flow, and Associated Biota

Map #	225		
Grantee:	Grand Canyon National Park, National Park Service	County:	Coconino
AWPF Funding:	$295,627.00	Completion Date:	February 2003

Project Description: The Grantee proposes to make a hydrologic and biologic assessment of twelve seeps and springs on the South Rim of the Grand Canyon National Park in order that water quality, spring flora, and associated invertebrate fauna is inventoried, monitored, and protected. Management objectives and strategies will be developed. Stakeholders will be involved through public outreach effort.

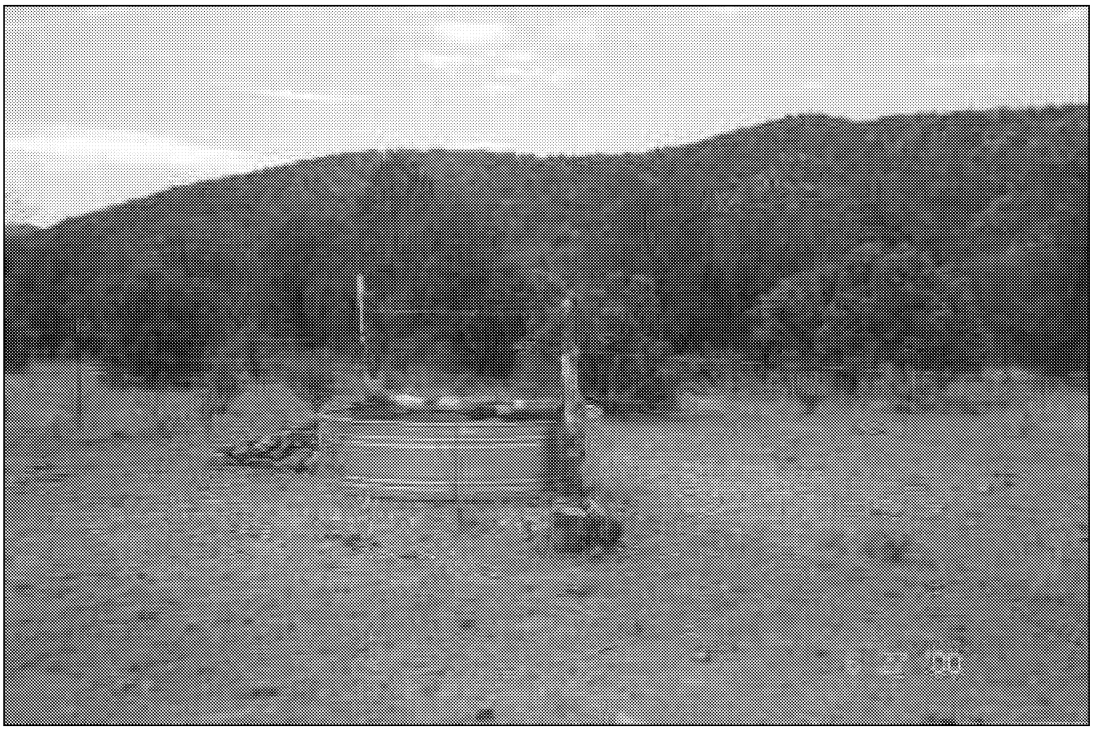

Figure 18. Off Channel livestock watering troughs will be installed to lessen grazing impacts in riparian areas. 99-070WPF

99-072WPF: Leopard Frog Habitat and Population Conservation at Buenos Aires National Wildlife Refuge

Map #: 226
Grantee: University of Arizona | County: Pima
AWPF Funding: $120,485.00 | Completion Date: September 2003

Project Description: The Grantee proposes to design and implement a ranch-based model to create and protect native leopard frog populations on the Buenos Aires National Wildlife Refuge (BANWR). This native riparian and wetland dependant amphibian species has been virtually eliminated by drying of habitats and spread of non-native predators such as the bullfrog. BANWR currently has one known population.

99-073WPF: Colorado River Nature Center Backwater – Phase 2

Map #: 227
Grantee: AZ Game and Fish Department | County: Mohave
AWPF Funding: $41,500.00 | Completion Date: November 2002

Project Description: The Grantee proposes to design engineering plans to begin Phase 2 of a backwater restoration project at the Colorado River Nature Center. These plans will delineate the following: all grading/surfacing work, site revegetation potential, backwater cross-sections, and linear and re-circulation pipe specifications. The Grantee will also develop sampling, revegetation, and monitoring plans during the project period at no cost to AWPF. The overall project involves a Cooperative Management Agreement (executed in 1987) between the Arizona Game and Fish Department, the U.S. Bureau of Land Management and Bullhead City.

99-074WPF: Proposal to Inventory, Assess, and Recommend Recovery Priorities for Arizona Strip Springs, Seeps, and Natural Ponds

Map #: 228
Grantee: Grand Canyon Wildlands Council | County: Coconino/Mohave
AWPF Funding: $101,856.00 | Completion Date: December 2002

Project Description: The Grantee proposes to initially review and compile all existing information on spring and seep locations in the Arizona Strip which is the portion of Arizona north of the Colorado River and south of the Arizona-Utah border. Then they will conduct a site visit and evaluate 100 spring, seep or natural pond ecosystems distributed across the Arizona Strip by collecting discharge, water quality, permanence of water, riparian vegetation, and other information. A subset of 10 representative sites will be selected for repeat visitation with additional field work and collection of more in-depth data. The springs, seeps, and ponds will be classified according to their hydrological & biological resources and conservation value. Draft recommendations will be made to the land management agencies for monitoring, protection, and restoration. The cooperating land management agencies are the U.S. Forest Service, U.S. Bureau of Land Management, and National Park Service. Researchers will not visit private or tribal lands unless invited on.

99-075WPF: Glen and Grand Canyon Riparian Restoration Project
Map #: 229
Grantee: Grand Canyon Wildlands Council
County: Coconino/Mohave
AWPF Funding: $317,285.00
Completion Date: June 2003

Project Description: The purpose of the project is twofold: (1) restore 10 acres of native cottonwood-willow habitat along the Colorado River at Lee's Ferry and (2) to eradicate tamarisk from 63 tributaries in the Grand Canyon.

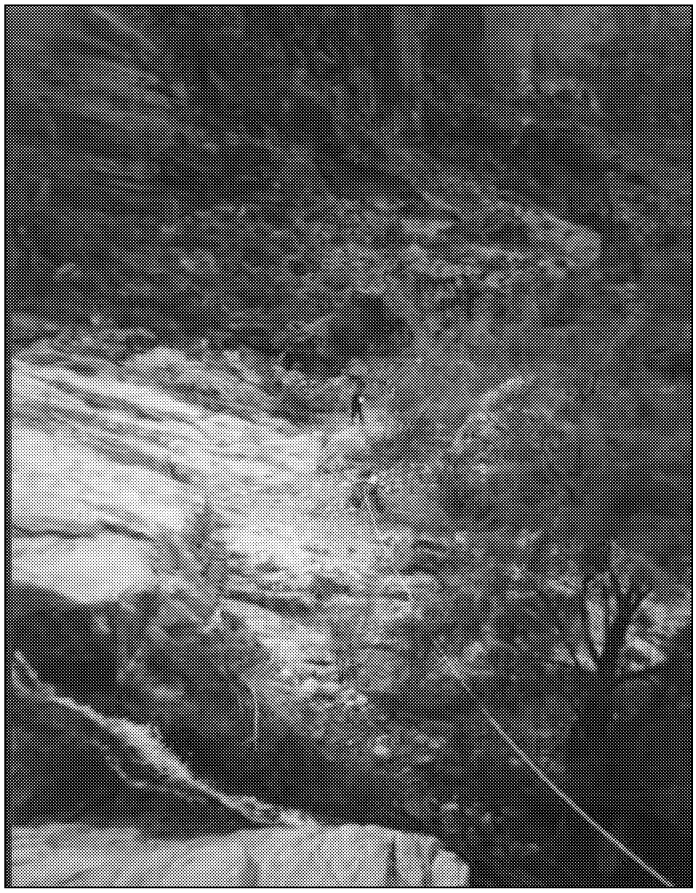

Figure 19. Establishing sampling transects along a tributary of the Colorado River. 99-075WPF

99-076WPF: Watson Woods Herpetological Interpretive Guide and Checklist
Map #: 230
Grantee: Prescott Creeks Preservation Assoc.
County: Yavapai
AWPF Funding: $31,255.55
Completion Date: June 2001

Project Description: The Grantee developed a Herpetological Interpretive Guide and Checklist for the Watson Woods Riparian Reserve which will assist management (by determining baseline diversity, relative abundance, and spatial and temporal distribution of reptile and amphibian species within the Preserve) and provide educational opportunities for visitors.

99-077WPF: Blue Box Crossing
Map #: 231
Grantee: Greenlee County
AWPF Funding: $150,000.00
County: Greenlee
Completion Date: September 2001

Project Description: The Grantee proposes to construct a hardened (concrete and riprap) crossing on the Blue River. The project site lies within a steep canyon of the Blue River, characterized by high intensity flows (a flow of 17,000 cfs was estimated in the 1983 flood; U.S. Fish and Wildlife Service listed 11cfs or less 50% of the time in their biological opinion). The existing gravel crossing washes out in high flows increasing the sediment downstream. The area is habitat for the loach minnow, a threatened species with the potential to be listed to endangered.

99-078WPF: **Aquifer Framework and Ground-Water Flow Paths in Big and Little Chino Basin**

Map #: 232

Grantee: U.S. Geological Survey | County: Yavapai

AWPF Funding: $181,840.00 | Completion Date: January 2003

Project Description: The Grantee proposes to address three major gaps in the understanding of hydrology in the Big and Little Chino Basins. In particular, the Grantee proposes to delineate subsurface geology using airborne geophysics, determine the travel time along four major flow paths using age-dating techniques, isotopes to examine contributions from recharge areas where data is scarce, and finally, determine the contribution of groundwater through a tracer dilution study.

Figure 20. Public visiting key locations of the Big and Little Chino Basin Study. 99-078WPF

99-079WPF: **Little Colorado River Riparian Restoration Project**

Map #: 233

Grantee: The Pueblo of Zuni | County: Apache

AWPF Funding: $404,587.00 | Completion Date: July 2003

Project Description: The Grantee seeks to restore a working riparian area and wetland ecosystem along the Little Colorado River in Hunt Valley. The project would involve testing and reconditioning an existing well and constructing a pipeline to an area that would restore 3 wetlands and 80 acres of riparian habitat. The Grantee is committed to maintaining the project in perpetuity and has obtained matching funding form the U.S. Bureau of Reclamation and U.S. EPA for

monitoring efforts on the project.

99-080WPF: Cortaro Mesquite Bosque

Map #: 234

Grantee: Pima County Flood Control District | County: Pima

AWPF Funding: $486,650.00 | Completion Date: June 2003

Project Description: The Grantee proposes to establish 80 acres of riparian habitat (7 marsh/wetland and 73 mesquite bosques) on the floodplain terraces in the Town of Marana along the Santa Cruz River, adjacent to the Continental Ranch subdivision. Pima County Flood Control District owns the project site. The vegetation would be irrigated by effluent produced at the two metropolitan wastewater treatment plants with supplemental irrigation from tributary flow ponded on the floodplain terraces.

99-083WPF: Cherry Creek Enhancement Demonstration Project

Map #: 235

Grantee: Tonto National Forest | County: Gila

AWPF Funding: $263,225.00 | Completion Date: June 2003

Project Description: The Grantee proposes to restore one mile of degraded perennial reach of Cherry Creek. The Grantee will conduct a site-specific assessment for the project site, including a topographic survey and evaluation of site characteristics and hydrology. The Grantee will select reference reach and evaluate the dimension, pattern, and profile of the reference channel. This reference reach will be used as a guide to design the restoration channel reconfiguration. Riparian vegetation is found within the active channel, which is subject to annual scouring flows. High flows mobilize great quantities of bed material, creating cutting and re-depositing channel bars.

99-084WPF: Assessments of Riparian Zones in the Little Colorado River Watershed

Map #: 236

Grantee: Little Colorado River Plateau RC&D | County: Apache

AWPF Funding: $79,443.50 | Completion Date: August 2002

Project Description: The purpose of this project is to develop a comprehensive riparian zone database that will assist in planning and implementing riparian restoration projects in the Little Colorado River Watershed. An expert panel will be used to develop parameters that best define critical riparian zones as part of this project. The defined parameters will be used in conjunction with the database to designate critical riparian areas within the watershed. This project will become the basis for the Little Colorado River Multiple Objective Management Process (LCR MOM) riparian zone restoration program.

99-085WPF: Kirkland Creek Watershed Resource Assessment

Map #: 237

Grantee: Triangle NRCD | County: Yavapai

AWPF Funding: $131,430.00 | Completion Date: April 2003

Project Description: The purpose of this project is to conduct a thorough resource assessment of the Kirkland Creek Watershed to define baseline conditions and provide direction for future enhancement actions. This project has a strong community outreach component, which includes newsletters and public meetings to keep local residents informed and promote community input. Project personnel will use the information obtained from the watershed assessment to prepare a long-term action plan, including an implementation schedule for watershed enhancement activities. In addition, project personnel will assist ranchers with updating resource management plans.

99-086WPF: Abandonment of Gila Oil Syndicate Well #1

Map #:	238		
Grantee:	Gila Valley Natural Resource Conservation District (NRCD)	County:	Graham
AWPF Funding:	$333,790.00	Completion Date:	December 2003

Project Description: The Grantee proposes to cap and abandon the Gila Oil Syndicate Well #1. Well #1 is the saltiest of all known saline wells in the Gila Valley, with Total Dissolved Solids (TDS) in excess of 19,000 mg/l. The abandonment of saline wells in the Gila Valley is one part of an overall water quality improvement strategy developed by the Gila Valley NRCD. The Grantee will investigate fund sources to cap and abandon these other saline wells in the area.

99-087WPF: Rillito Creek Habitat Restoration Project

Map #:	239		
Grantee:	City of Tucson	County:	Pima
AWPF Funding:	$293,000.00	Completion Date:	March 2003

Project Description: The purpose of this project is to restore a mesquite bosque along a portion of the Rillito River, and provide recreational and educational opportunities for schools and the public. The project involves a cooperative effort between the City of Tucson and Pima County Floodplain Management to form partnerships with neighborhood groups, schools, and the general public in restoring riparian habitat. City staff will guide neighborhood and educational groups in the revegetation and maintenance efforts. A single trail will be developed to allow access, and will join with the adjacent River Park. The project will use of reclaimed water to irrigate and establish native plants.

99-088WPF: Wickenburg High School Stream Habitat Creation

Map #:	240		
Grantee:	Wickenburg Unified School District	County:	Maricopa
AWPF Funding:	$69,100.00	Completion Date:	June 2003

Project Description: The Grantee proposes to add a recirculating stream to a wastewater treatment wetland to provide additional aeration to the open water portion of the treatment wetland. The Grantee also proposes to create a riparian and xeroriparian vegetative community at the 15-acre project site. Over 800 mesquite, willow and cottonwood trees will be planted as well as a native shrub/scrub mixture. Students, as part of the educational component of this project, will conduct basic monitoring.

Figure 21. Portion of the wetland facility at Wickenburg High School. 99-088WPF

99-089WPF: Town of Eager/Round Valley Water Users Association Pressure Irrigation Feasibility Study & Preliminary Design

Map #: 241

Grantee: Town of Eager/Round Valley Water Users Association

County: Apache

AWPF Funding: $320,540.00

Completion Date: June 2001

Project Description: The purpose of this project was to conduct a feasibility study and preliminary design for making improvements to the Round Valley Water Users Association irrigation system. Substantial improvements to the irrigation system can potentially enhance the quality and quantity of water in the Upper Little Colorado River, and increase upstream storage. Irrigation water is currently delivered through unlined open ditch canals, and extremely high water losses occur through percolation. These losses result in more water being diverted from the Upper Little Colorado River than is actually utilized. This study was to identify the extent of water loss in the current irrigation ditch and canal system, and provide a preliminary design for the most feasible method to resolve these water losses. Implementation of potential recommendations from this study could enhance riparian habitats along the Upper Little Colorado River and benefit fish and wildlife that depend on these habitats.

99-090WPF: Redrock Riparian Improvement

Map #: 242

Grantee: Coronado National Forest

County: Santa Cruz

AWPF Funding: $62,350.00

Completion Date: June 2003

Project Description: The purpose of this project is to improve riparian conditions and expand Gila topminnow habitat while maintaining multiple use in the Redrock Canyon watershed. The application proposes a series of rangeland improvements to accomplish this goal. Existing electrical fence frequently shorts out and requires continual maintenance. There is a need to replace electrical fencing with barbed wire and to expand the existing exclosure to protect a perennial reach of the canyon from grazing pressure. Extension of the exclosure will intersect a forest trail and road. The road will need to be rerouted to allow continued access by motor vehicles. In addition, there is a need to provide an off-stream livestock water source.

99-091WPF: Effects of Livestock Use on Riparian Trees on the Verde River

Map #:	243		
Grantee:	Arizona State University	County:	Yavapai
AWPF Funding:	$41,417.00	Completion Date:	March 2003

Project Description: The Grantee proposes to study how various livestock use levels affect growth, survival and population dynamics of Goodding Willow and Fremont Cottonwood trees along the Verde River. Under the terms of a Biological Opinion for the Skeleton Ridge Allotment, no more than 40 percent of the meristems of these woody species may be used. This standard has been adopted by the Tonto National Forest, for riparian areas with federally listed species. Anecdotal information supports this level of use but little quantitative data exists to support this standard.

99-092WPF: Little Colorado River Enhancement Demonstration Project

Map #:	244		
Grantee:	Apache Natural Resources Conservation District (NRCD)	County:	Apache
AWPF Funding:	$348,137.94	Completion Date:	July 2003

Project Description: The purpose of this project is to develop a site-specific concept plan and construct a river restoration demonstration project on a reach of the Upper Little Colorado River. Gary and Cheryl Enders have agreed to allow the restoration project to occur on their property. The proposed project will incorporate a natural channel approach that will demonstrate an effective means for restoring a destabilized stream channel. The Upper Little Colorado River Partnership hopes to establish a demonstration project that will educate other landowners and natural resource managers about stream and riparian restoration techniques. The Apache NRCD will use the demonstration project as an outdoor classroom to supplement their curriculum on aquatic and riparian systems, biology, and domestic livestock and wildlife interactions.

Figure 22. The Little Colorado River Enhancement Demonstration Project will use natural channel design approaches to restore a segment of the Little Colorado River. 99-092WPF

99-093WPF: Coconino Plateau Regional Water Study

Map #: 245

Grantee: City of Williams | County: Coconino

AWPF Funding: $134,200.00 | Completion Date: June 2002

Project Description: The Grantee is contracting with the U.S. Geological Survey to determine the physical boundaries and flow direction for the systems that supply the major springs of the Coconino Plateau in the Greater Grand Canyon region. The project will examine the geohydrologic controls and provide the basic data needed to estimate impacts of development on the springs and riparian habitats, through well and spring inventories. The application also proposes to determine additional data needs and analysis required to evaluate the sustainability of natural flows, and will develop a monitoring plan for future collection of baseline data.

99-094WPF: Santa Cruz River Park Extension

Map #: 246

Grantee: City of Tucson Department of Transportation | County: Pima

AWPF Funding: $434,684.00 | Completion Date: June 2003

Project Description: The Grantee proposes to create a riparian and upland riparian habitat on a denuded 50-acre lot at the confluence of Irvington Wash and the Santa Cruz River. Seven acres of land near the wash will be planted with native riparian vegetation; the remaining 40 acres will be mesquite bosque. Vegetation will be established and supported for the life of the project with

tertiary-quality reclaimed water. The Grantee will design and build the distribution system to deliver reclaimed water to the site. The Grantee will design and build a public access trail system with interpretive signs. Hydro-riparian plants will be planted in the non-bank protected Irvington Wash where gabions and flow-detaining structures will increase soil moisture levels, potentially allowing vegetation to be self-sustaining.

99-095WPF: Brown Creek Riparian Restoration

Map #: 247
Grantee: Apache-Sitgreaves National Forest Lakeside Ranger District
County: Navajo
AWPF Funding: $34,037.00
Completion Date: December 2004

Project Description: The Grantee proposes to build one livestock watering facility, conduct a baseline inventory, and then monitor a perennial area of Brown Creek on the Lakeside Ranger District. The project area includes the spring and approximately 1½ miles of the upper reach of Brown Creek, which is one of the few perennial streams on the Lakeside District.

99-096WPF: Upper Santa Cruz Watershed Restoration

Map #: 248
Grantee: Lazy J2 Ranch
County: Santa Cruz
AWPF Funding: $187,350.00
Completion Date: June 2003

Project Description: The Grantee proposes to install fencing and water developments to more evenly distribute livestock grazing impacts throughout the A Bar Draw Allotment in the San Rafael Valley. Nine dirt tanks will be cleaned; three tanks provide habitat for the endangered Sonoran Tiger Salamander, and would be fitted with sediment traps, and partially fenced to exclude livestock use. The Grantee will reconstruct two corrals to treat livestock without moving them to headquarters, two miles to the west. According to the Forest Service the allotment has insufficient vegetative cover and litter accumulation, which results in increased runoff and suspended sediment, and decreased water percolation. This degraded condition is the result of drought and improper grazing management by the prior permittee.

99-097WPF: Dakini Valley Riparian Project

Map #: 249
Grantee: Dakini Valley LLC
County: Gila
AWPF Funding: $66,130.00
Completion Date: April 2003

Project Description: The Grantee proposes to protect an approximate one-half mile reach of Gordon Creek from overgrazing by constructing a two-mile long elk fence around the area. The Grantee will cut down cat claw that has invaded two acres of Gordon Creek terrace and will re-seed with native grasses; the Grantee will revegetate the stream bank with Emory oak trees. The Grantee will repair two dirt tanks at Bear Flat to provide off-channel water for cattle and elk. The Grantee will construct informational signs and literature describing the project resource issues and goals for visitors and guests at Dakini Valley.

99-098WPF: **Rio Salado Habitat Restoration Project**
Map #: 250
Grantee: City of Phoenix Parks, Recreation, and Library Department
County: Maricopa
AWPF Funding: $950,408.00
Completion Date: October 2003

Project Description: The Grantee proposes to create a vegetation demonstration project to 1) test the performance of various plant materials planned for use in the greater Rio Salado project under various supplemental irrigation strategies and 2) evaluate the treatment quality of the created wetlands for treating storm water, one of the water sources to the project. The greater Rio Salado project will create authentic Sonoran Desert riparian habitat, adapted for the highly altered Salt River channel as it passes through Phoenix. The Grantee will create a low-flow channel to alleviate plant kill associated with long-term inundation and to provide opportunity for aquatic strand/shrub habitat types. An estimated 5.82 mgd of water will be needed to support the habitats and maintain the perennial stream in the low-flow channel.

AWARDED DURING FY '01

00-099WPF: **Gila Reference Riparian Area, Discovery Park**
Map #: 251
Grantee: Mt. Graham International Science & Culture Foundation, Inc.
County: Graham
AWPF Funding: $152,850.80
Completion Date: July 2004

Project Description: Discovery Park is a 125-acre scientific, historic and cultural theme park that provides education through hands on experience for both children and adults. In 1997 the Commission funded habitat enhancements at the park including a greenhouse, water delivery and measurement devises, information kiosk, brochures and technical releases about propagation techniques, imprinting and seeding with native grasses.
In this Grant, the Grantee proposes to 1) propagate native plants for additional 65 acre revegetation site, 2) install six monitoring wells to determine depth to water and to aid in selecting appropriate planting sites, 3) monitor and evaluate a number of propagation and revegetation techniques to determine which are most successful and 4) continue exotic weed eradication in the existing and new revegetation sites.

00-100WPF: **Willow Creek Riparian Restoration Project**
Map #: 252
Grantee: David Movius
County: Mohave
AWPF Funding: $34,390.00
Completion Date: June 2004

Project Description: The purpose of this project is to restore, augment and protect the historic riparian habitat along a portion of Willow Creek. The subject property is a 40-acre parcel that was once part of the Willows Ranch and has been over grazed for many years. The Grantee purchased this property in 1999 and has a sincere desire to reverse the deterioration of riparian habitat by restoring the quantity and quality of the native vegetation along Willow Creek. This project includes a revegetation plan that seeks to restore native species. A temporary, low

volume irrigation system will be installed and utilized for an estimated period of two years. In addition, 2600 linear feet of fencing will be installed to protect the riparian zone. The Grantee has consulted with the NRCS and Arizona Game and Fish to develop this proposal. Both of these entities will continue to be involved with this project.

00-101WPF: Murray Basin and Saffel Canyon Watershed Restoration Project

Map #:	253		
Grantee:	Apache-Sitgreaves National Forest	County:	Apache
AWPF Funding:	$258,227.83	Completion Date:	June 2004

Project Description: The Murray Basin and Saffel Canyon Watershed Restoration project proposes to restore two severely degraded upper watersheds to satisfactory conditions, reduce erosion processes currently in force and restore channels to their natural form and function. Plans for watershed restoration include gully stabilization structures, pinion-juniper thinning, herbaceous revegetation of the uplands, and road obliteration and rehabilitation. AWPF funds are requested for construction of gully stabilization structures, including heavy equipment rentals, materials and labor. Funding is also being requested for contracting pinion-juniper thinning of the uplands, obliteration of designated roads and two-tracks, and revegetation of all disturbed sites.

00-102WPF: Upper Eagle Creek Restoration on East Eagle Allotment: Four Drag Ranch

Map #:	254		
Grantee:	Gary and Darcy Ely	County:	Greenlee
AWPF Funding:	$66,330.00	Completion Date:	June 2003

Project Description: The goal of the Upper Eagle Creek Restoration Project is to construct range improvements that will protect and improve watershed and riparian conditions and result in the restoration of riparian habitat and perennial stream, which is critical to the survival of the threatened spikedace and loach minnow. AWPF funding would result in:

1. Construction of permanent off-riparian livestock water in Steer Pasture. Entails construction of 2 miles of pipeline, solar pump and panels, storage tank and trough. Water source is Eagle Creek.
2. Construction of about 5.7 miles of fencing along East Eagle and Robinson Creeks.
3. Reconstruction of 7.5 miles of San Carlos Apache Indian Reservation/East Eagle Creek allotment boundary/livestock fencing.

Project features are on US Forest Service lands. US Forest Service, Clifton Ranger District is in support of and will participate in various aspects of grant implementation.

00-103WPF: Riparian Restoration on Santa Cruz River - Santa Fe Ranch

Map #:	255		
Grantee:	Coronado Resource Conservation and Development Area, Inc.	County:	Santa Cruz
AWPF Funding:	$49,008.00	Completion Date:	September 2004

Project Description: The purpose of the project is for erosion control and revegetation of the Grantee's riparian area on private lands and to increase public awareness of riparian systems and

values. AWPF is being requested to fund revegetation of a degraded riparian corridor along the Santa Cruz. The revegetated area will be irrigated with supplemental water with the intent of establishing self-sustaining riparian vegetation. AWPF will also fund a cattle exclosure fence. The Grantee will develop a teacher's guide to riparian education through the Coronado RC&D, conduct an informational tour of the site and develop a photographic display and brochure of the project site for use at institutional gatherings such as the Arizona Cattle Growers Association, etc. The NRCS proposes to establish a technical project team consisting of an engineer, plant material specialist, rangeland management specialist, educational consultant, county extension service agent, and the science instructor from the Little Red School House, Nogales to oversee project planning, implementation, monitoring, and evaluation.

Figure 23. Southwest Strategy group members participate in a tour of the project site at Hubbell Trading Post National Historic Site. 00-104WPF

00-104WPF: Continued Enhancement of Pueblo Colorado Wash at Hubbell Trading Post National Historic Site

Map #:	256		
Grantee:	National Park Service – Hubbell Trading Post National Historic Site	County:	Apache
AWPF Funding:	$69, 349.00	Completion Date:	August 2004

Project Description: The Grantee proposes to continue the enhancement and monitoring of the AWPF project funded during the 1997 cycle. This project strove to restore to a functioning condition, the Pueblo Colorado Wash within the Hubbell Trading Post boundaries. This project is using natural channel design and has experienced substantial success in re-establishing the sinuosity, function and vegetation in the area. The Grantee has been undertaking a Tamarisk and Russian Olive eradication effort combined with revegetation of cottonwoods and willows. This project seeks to (1) continue the monitoring of existing structures and the system (NPS will

contribute the match of maintaining the existing structures); (2) conduct wildlife surveys; (3) install new structures where needed; (4) continue public outreach program. The current project has received awards from the NPS and USEPA.

00-105WPF: Hubbell Trading Post Riparian Restoration with Treated Effluent

Map #: 257

Grantee: National Park Service – Hubbell Trading Post National Historic Site

County: Apache

AWPF Funding: $61,951.00

Completion Date: August 2004

Project Description: The Grantee proposes to use secondary treated effluent from the nearby treatment facility to restore approximately four-acres of the floodplain at the Hubbell Trading Post in cooperation with the U.S. Bureau of Reclamation, Navajo Tribal Utility Authority, and Navajo Department of Water Resources. The Grantee will design the distribution system, subsurface irrigation system, construct the systems, eradicate Tamarisk and Russian Olive, vegetate and monitor the site for survivability, vigor, regrowth of exotics, water quantity and quality, as well as establishing photo points.

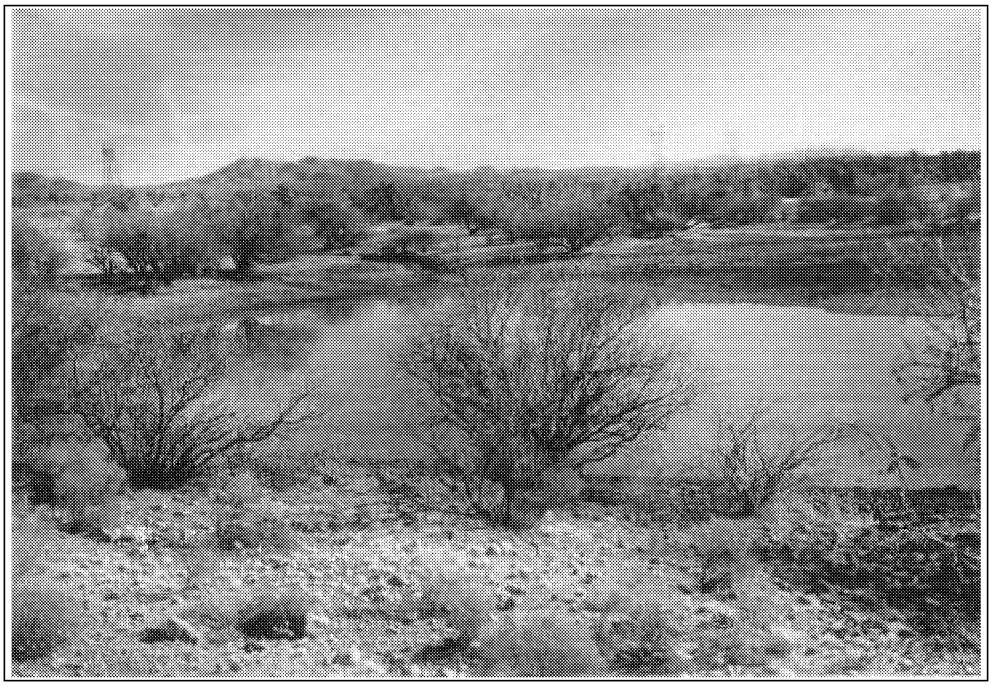

Figure 24. Buck Tank at Tres Alamos Ranch prior to fencing and revegetation. 00-106WPF

00-106WPF: Tres Alamos Ranch Dirt-Tanks-To-Aquatic-Habitat Conversion

Map #: 258

Grantee: Tres Alamos Ranch

County: Yavapai

AWPF Funding: $77,657.97

Completion Date: June 2003

Project Description: The Grantee proposes to 1) clean out sediment from five dirt tanks when tanks are dry; tanks will not be sealed 2) construct sediment traps above the tanks 3) fence the

tanks to eliminate livestock access 4) replant three of the tank sites with native aquatic plants and compare regeneration of non-revegetated tank sites with revegetated sites 5) rehabilitate existing wells, install storage tanks and drinkers with wildlife escape ramps to provide alternate livestock water. Approximately 35 acres will be fenced to eliminate livestock use. The Grantee, Prescott Audubon Society, and Wickenburg High School students will monitor the results of the revegetation as well as bird, mammal, amphibian, reptile and invertebrate use of the dirt tank sites.

00-107WPF: CRIT 30 Acre Revegetation Project

Map #:	259		
Grantee:	Colorado River Indian Tribes	County:	La Paz
AWPF Funding:	No Funding	Completion Date:	Unable to Contract

Project Description: The purpose of this project was to restore 30 acres of native riparian vegetation at the Colorado River Indian Reservation 'Ahakhav Tribal Preserve and to monitor the revegetated areas for optimum successful habitat enhancement. The 'Ahakhav Tribal Preserve consists of 1042 acres along the Colorado River and has served as a model for riparian restoration projects on both a regional and national level. The 30 acre restoration site referred to above is located on Deer Island and would have complimented the 75 acre site restored in and around this area with a 1997 grant funded by AWPF.

00-108WPF: Lake Mary Watershed Streams Restoration

Map #:	260		
Grantee:	Northern Arizona University	County:	Coconino
AWPF Funding:	$253,119.00	Completion Date:	August 2004

Project Description: The Grantee, in partnership with the U.S. Forest Service, proposes to restore two degraded reaches that impact both Upper and Lower Lake Mary primarily with excessive sedimentation. The Grantee plans to use a natural channel design approach beginning with a site assessment and final design. The Grantee will survey the lake bottom at Lake Mary, install crest gages, modify the channels and revegetate along the two reaches based on the final design developed during the project. Where possible, the existing road will be relocated away from the existing stream channel. The Grantee will monitor the channel morphology, water and sediment discharge and conduct photopoint monitoring as well.

00-109WPF: Middle San Pedro Watershed Project

Map #:	261		
Grantee:	Redington Natural Resource Conservation District	County:	Cochise, Graham, Pima, Pinal
AWPF Funding:	$249,871.00	Completion Date:	To Be Determined

Project Description: The Middle San Pedro Watershed Project will provide a watershed resource assessment, including historical and current conditions, and develop a watershed action alternatives plan to propose potential methods for improving watershed conditions. In addition, the project aims to bring the local communities together to address watershed issues and solicit community input.

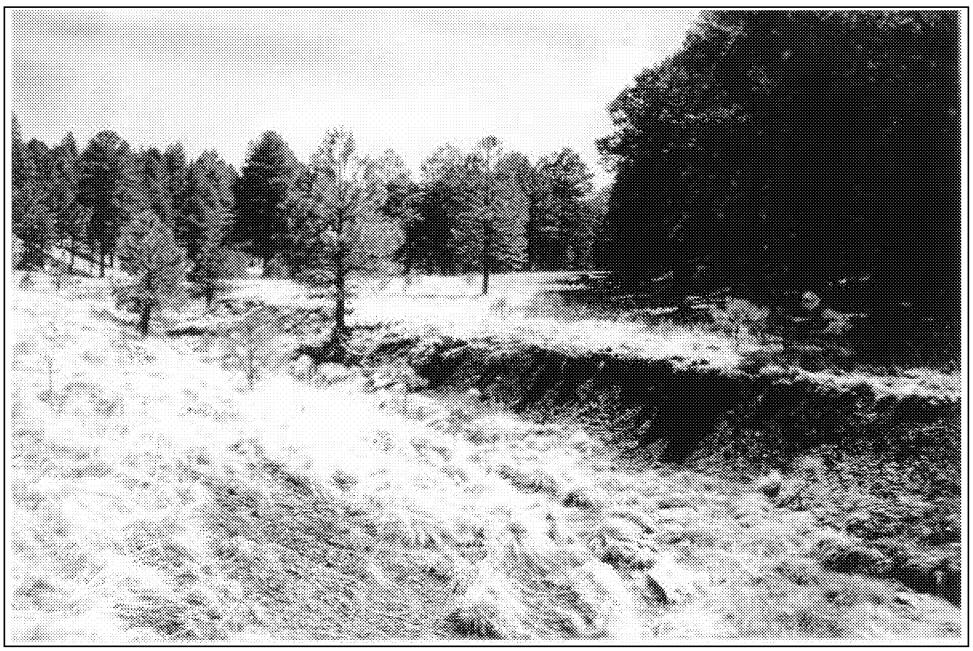

Figure 25. Lake Mary tributary prior to restoration activities. 00-108WPF

00-110WPF: Upper Fairchild Draw Riparian Restoration

Map #: 262
Grantee: Apache-Sitgreaves National Forest County: Apache
AWPF Funding: $35,515.00 Completion Date: May 2004

Project Description: The Upper Fairchild Draw Riparian Restoration Project proposal is designed to protect approximately 15 acres of wet meadow and .05 miles of an intermittent stream channel in the headwaters of the Willow Creek watershed from detrimental ungulate impacts. The project would promote restoration of the native riparian plant community, and facilitate recovery of the drainage channel morphology. The specific objectives of the proposal are to increase the vigor and abundance of existing species of native riparian vegetation, restore a Bebb Willow community that once dominated the Cienega in the project site, and improve the channel drainage morphology in the stream. AWPF funds are requested to construct an eight-foot high exclosure around the Cienega, plant Bebb Willows inside the exclosure, and monitor riparian vegetation and channel morphology responses to removal of ungulate impacts.

00-111WPF: Cooperative Grazing Management for Riparian Improvement on the San Pedro

Map #: 263
Grantee: Double Check Ranch/ The Nature Conservancy County: Pinal
AWPF Funding: $203,701.00 Completion Date: March 2004

Project Description: The Grantee proposes joint management in the form of a cooperative grazing management plan, for the Double Check Ranch and the TNC State Lease land. To

facilitate implementation of a cooperative grazing management plan, additional fencing and water developments would be needed on both the State Lease land and the Grantee's deeded property. Grantee also proposes to organize and host a herding workshop for ranchers throughout the state. Grantee would fund the herding workshop.
The Grantee has observed damage to the river at the Dudleyville crossing due to off-road vehicle use. Grantee proposes to host six facilitated meetings to assist the community in developing a shared vision of the future for the area to safeguard the environment, watershed and the riparian habitat.

00-112WPF: Town of Eagar/Round Valley Water Users Association Pressure Irrigation Feasibility Study and Preliminary Design - Additional Mapping for Water Quality Improvements in the Watershed

Map #:	264		
Grantee:	Town of Eagar/Round Valley Water Users Association	County:	Apache
AWPF Funding:	$151,829.00	Completion Date:	May 2004

Project Description: The purpose of this grant is to provide additional funding to complete mapping in the Upper Little Colorado River Watershed, specifically the rest of Springerville and surrounding area, the Upper Little Colorado River channel from Round Valley to Lyman Lake and Nutrioso Creek.

00-113WPF: Polacca Wash Grazing Management

Map #:	265		
Grantee:	The Hopi Tribe	County:	Navajo
AWPF Funding:	$267,511.00	Completion Date:	June 2004

Project Description: The purpose of the Polacca Wash project is to restore perennial reaches of Polacca Wash by excluding livestock, eradicating tamarisk and revegetating the area with native plants. The Grantee will construct 14 miles of wildlife fencing on both sides of the wash to exclude livestock and provide an off-riparian livestock water. Tamarisk will be eradicated on 29 acres along two perennial reaches of Polacca Wash. This wash area will be revegetated with native riparian and wetland plants and the upland will be reseeded with native grasses.

00-114WPF: The Papago Park Green Line Project

Map #:	266		
Grantee:	Arizona Historical Society	County:	Maricopa
AWPF Funding:	$229,152.00	Completion Date:	November 2004

Project Description: The project provides funding to guarantee water to riparian habitat threatened with future reduction of water flows from the John G. Martinez Water Treatment Plant (JGMWTP). The Papago Green Line is a diverse urban riparian area established over the past thirty-three years along a formerly ephemeral desert wash. The riparian ecosystem has evolved primarily from intermittent water releases from JGMWTP, in the form of overflows of filter backwash water from the holding pond down the Green Line drainage. The purpose of this project is to secure a twenty-year water supply to sustain the Green Line riparian area.
In addition to the secured water supply, a master flow-metering program would be developed to

monitor all water flows into and out of the Green Line and the lower pond area. Also, this project contains a riparian restoration and revegetation component. Finally, a comprehensive interpretive and educational riparian program will be developed and implemented.

Figure 26. Excluding cows and removing exotic plant species will aid in restoration of the perennial stream portions of Polacca Wash. 00-113WPF

00-115WPF: Tucson Audubon Society North Simpson Farm Riparian Recovery Project

Map #: 267

Grantee: Tucson Audubon Society | County: Pima

AWPF Funding: $127,409.30 | Completion Date: August 2004

Project Description: The Grantee proposes to enhance a degraded portion of the Santa Cruz River near Marana. Overall, the site is within a 350-acre parcel that has received 404 Clean Water Act mitigation funding as well as US Fish and Wild Service funding to complete restoration activities. The Partners for Wildlife Fund will help to prepare a site assessment of the entire area and lay the groundwork for determining the precise location of the proposed AWPF activities. The Grantee seeks to increase the diversity and resiliency of the vegetation in this area and thereby increase the stability of the site. This area has experienced a high degree of erosion, due to flooding, and other activities including trespass grazing, and unauthorized motor vehicle use. The Grantee proposes to use a combination of rainwater harvesting, mulching, increasing vegetative species and diversity, fencing to control cattle and unauthorized vehicle use, and a public outreach program. The City of Tucson has agreed to provide temporary water to the vegetation as needed from on-site wells.

ARIZONA WATER PROTECTION FUND
Combined Statement of Receipts, Expenditures and Fund Balance
From Inception July 1, 1994 Through June 30, 2001
(000's Omitted)

RECEIPTS:		
Transfers In-		
Appropriation From General Fund		
July 1, 1994	4,000	
July 1, 1995	6,000	
July 1, 1996	5,000	
Fiscal Year 1998	1,600	
Fiscal Year 1999	4,516	
From Picacho Reservoir Project 3/31/00	1,594	22,710
Investment Income		5,348
Interstate Water Sales (CAP)		483
Receipts and Donations		10
EXPENDITURES:		
ADWR Support	2,422	
ASLD Support	215	
Commission Expenses	65	
Grant Disbursements	11,421	
		14,123
FUND CASH BALANCE		14,428
LESS REMAINING GRANT OBLIGATIONS*		-12,962
TOTAL		1,466

ACCOUNTS	
GRANT MANAGEMENT & ADMINISTRATION	1,058
COMMISSION EXPENSE AND GRANT	408
TOTAL ACCOUNTS	1,466

* Includes additional projects selected for 1996 Fund Cycle, Encumbrances for contracted 1999 projects and NAU IGA's, and Pre-encumbrances for the remaining 1999 Fund Cycle Grants.