

Cover Page: Application Information

WPF-124  
96-0013

1. Title of Project: Happy Valley Riparian Area Restoration Project

2. Type of Project: Water Acquisition  
 Capital Project or other  
 Water Conservation  
 Research

3. Stream type  
 Perennial  
 Intermittent  
 Ephemeral

4. Date submitted: August 1, 1996

5. Date received by ADWR \_\_\_\_\_

6. Applicant Name: Coronado National Forest

7. Applicant address (city, county, zip code)  
Forest Supervisor  
Coronado National Forest  
300 West Congress  
Tucson, AZ 85701

8. In an AMA \_\_\_\_\_  
Phoenix \_\_\_\_\_  
Tucson \_\_\_\_\_  
Prescott \_\_\_\_\_  
Pinal \_\_\_\_\_  
Santa Cruz \_\_\_\_\_

Outside AMA x

9. Contact person/title and phone/fax number: Jennifer Ruyle/Ecologist (520)749-8700 fax:(520)670-5077  
Tim Connor/Range Watershed Staff Officer

10. Type of application:  
New (X) Continuation ( )

11. Project start date: Feb. 1997  
End date: Feb. 1999

12. Other grants obtained and secured:	13. Estimated funding:
Grant type	a. AWPf <u>\$64,697</u>
Amount	b. Applicant <u>\$41,680</u>
_____	c. Other <u>\$ 8,000</u>
_____	d. Total <u>\$114,377</u>
_____	
_____	
_____	
_____	
Total	

14. Tax ID number **PII**

15. The undersigned hereby offers and agrees to perform in compliance with all terms, conditions, specifications and scope in the application. Signature certifies understanding and compliance with the attached application. Signature certifies that all information provided by the applicant within this application is true and accurate. The Arizona Water Protection Fund Commission may approve grant award agreements with modifications to scope items, methodology, schedule, final products, and/or budget.

JOHN M. McGEE  
Typed Name of Authorized Representative

Patricia W. Speed  
Signature

Active  
Forest Supervisor (520) 670-4552  
Title and Telephone No.

8/1/96  
Date



## **Summary:**

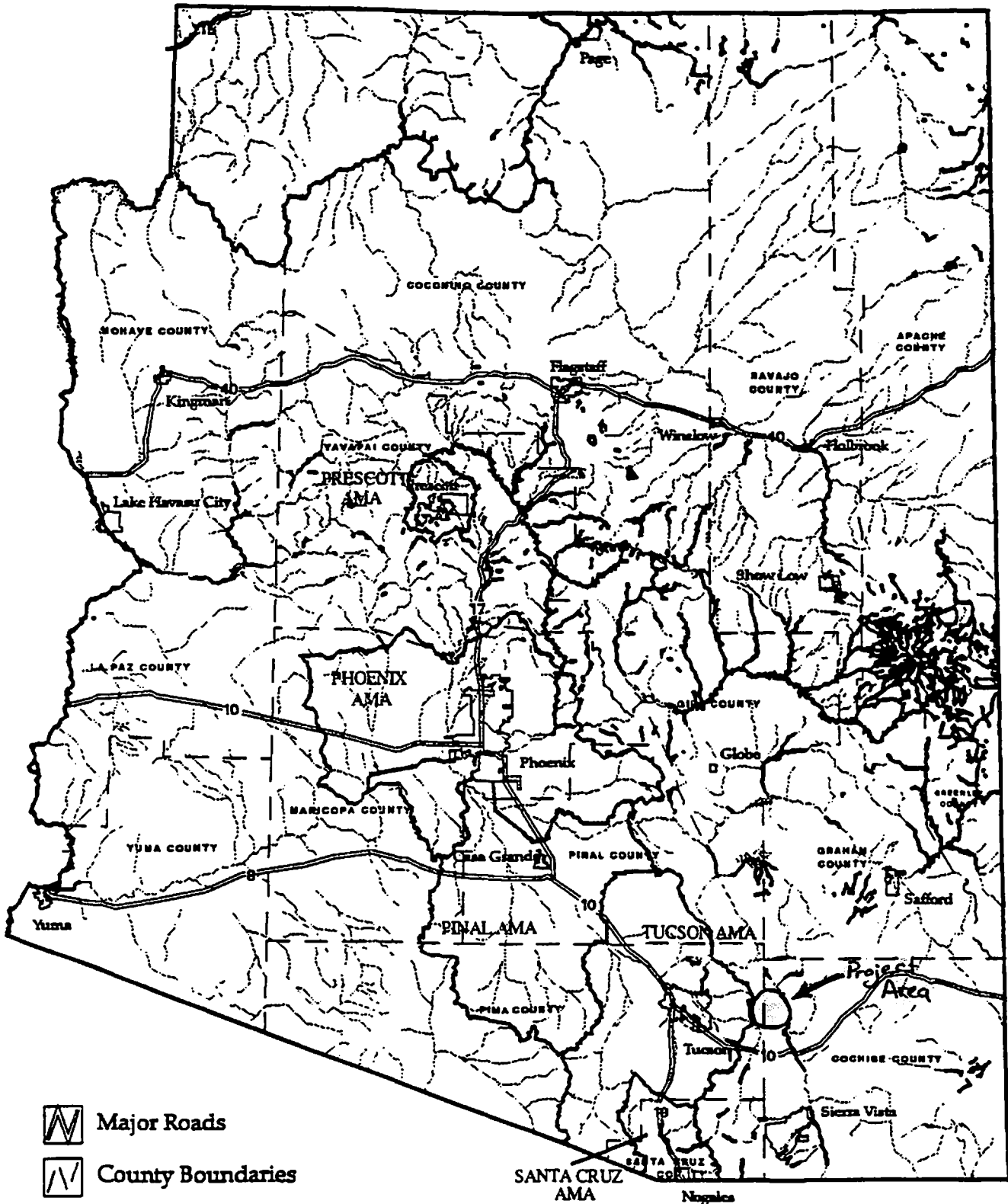
The Paige Creek riparian area is located on the east side of the Rincon Mountains in an area known as Happy Valley. The area is unique because of its large riparian gallery and undeveloped nature. It has traditionally supported livestock grazing, and is becoming increasingly popular with recreationists. Because the riparian area is showing signs of deterioration and the number of users is increasing, now is the time to take action to control use and enhance natural restoration processes.






There are four phases to this project. A riparian area livestock enclosure fence will be constructed. A water source in an upland area will be established. Instream channel structures will be constructed to reduce the energy of flows and hold water on site for longer periods. A pipe barrier fence will be constructed to eliminate vehicle impacts to a high potential area.

The proposed project will provide protection by controlling livestock and recreational use. At the same time this project will provide for the continued viability of the livestock grazing operation through improved range management practices. Also, the quality of the recreational experience will be improved.

# Arizona Map Instructions

Indicate on the map the approximate location of your project. Ensure that your markings are clearly visible on all five copies submitted.



-  Major Roads
-  County Boundaries
-  Perennial Streams
-  Intermittent or Ephemeral Streams
-  Active Management Areas



PROJECT NAME: Happy Valley Riparian Area Restoration



## LOCATION INFORMATION SHEET/LAND OWNERSHIP FORM

1. County: Pima 2. Section: 1,2,6,11,12 3. Township: 15 S

4. Range: 19 E 5. Stream Name: Paige Creek

6. Landownership of project area: National Forest and Private

7. Current land use of project area: Grazing and recreation

8. Length of stream through project area: 4 miles

9. Size of project area (in acres): 124

10. Is the project area fully defined at this time: Y/N? Yes

11. Provide directions to the project site from the nearest town. List any special access requirements.

Take I-10 East from Tucson. Exit I-10 at Mescal Road/J Bar 6, turn north, (left) and travel 14 miles (Mescal road becomes FS road #35). Approximately 1 hour travel time after leaving interstate.

12. Describe the agreements which give you legal access to the project area throughout the project period. Include signed copies of any agreements already in effect.

Project area is totally within the National Forest.

### Statement of problem/s:

- \* Stream channel widening
- \* Downcutting of the channel
- \* Loss of large, woody plants (primarily large sycamore and cottonwood trees)
- \* Lack of regeneration of woody plants
- \* Flash flooding
- \* Compaction of the streambank and channel

### Statement of cause/s of the problem/s:

- \* Water sources for livestock are in the stream channel
- \* Livestock congregate in the cooler environment provided by the riparian vegetation
- \* Recreationists use the stream channel for camping and driving
- \* Compacted and devegetated streambanks are vulnerable to flood damage
- \* There are an increasing number of recreationists that are attracted to the area

### Statement of remedies or solutions:

- \* Fence livestock away from riparian corridor
- \* Develop water sources away from stream channel
- \* Build in-stream structures to help control flows in areas that are subject to channel cutting
- \* Construct barriers to control illegal off road vehicle use
- \* Initiate scoping process to develop alternatives for controlling recreation use

### Introductory Information:

The Paige Creek watershed covers approximately 28,000 acres of National Forest land on the east side of the Rincon Mountains, in an area called Happy Valley. The vegetation type is primarily oak woodland, with a large riparian gallery. The area has traditionally supported livestock grazing, and the few residents of the valley are ranchers. It is also popular for dispersed recreation (hunting, camping and OHV use). The large riparian gallery is considered to be one of the best neo-tropical migratory bird habitats on the Santa Catalina Ranger District and has attracted the attention of Tucson area birdwatchers.

Happy Valley is almost entirely National Forest, with the exception of two parcels of private land inholdings. Much of this private land is currently in the federal land exchange program, and will become Forest land in approximately two years. None of the projects described in this proposal will be on exchange lands.

Because the riparian area is showing signs of deterioration, efforts were initiated in 1994 to protect the streambanks from overuse by cattle and recreationists. Work completed to date includes two miles of riparian area enclosure fence along Paige Creek. An additional two miles of tributary stream channel (Turkey Creek) has almost been completed. A grant application has been submitted to Wildlife Forever for \$7,500 to complete the Turkey Creek enclosure. Also in 1994, work was started on an allotment management plan for the Happy Valley Allotment, which occupies much of the watershed. This plan will be completed in 1997.

The purpose of the proposed project is to provide additional protection for the Paige Creek riparian area by controlling livestock and recreational use. At the same time, this project will effectively provide for the continued viability of the livestock grazing operation, and improve the quality of the recreational experience. The project is divided into four phases, 1) construction of a riparian enclosure fence, 2) development of an upland water source for livestock, 3) installation of in stream structures to control erosion and help restore natural regeneration processes and 4) construction of a fence barrier in an area that is being impacted by vehicles.

Construction of the riparian area enclosure fence will protect the riparian area from the impacts of livestock. The proposed fence will tie in with an existing enclosure, resulting in a total of four continuous miles of protected stream channel.

In order for this project to be successful, an alternative water source for livestock will need to be developed by constructing approximately 1 3/4 miles of pipeline and installing two pumps to carry water from a developed spring to a storage tank and troughs located in upland areas.

The third phase of this project will be to promote the regeneration of riparian area vegetation and a rise in the water table through the use of in-channel structures. These will include check dams and gabions, along with erosion control matting, seed and mulch.

The fourth phase is the construction of a pipe barrier fence in an area impacted by vehicles. The location is a flat expanse directly adjacent to the stream channel. It has the potential for dramatic riparian production if protected from vehicle use. The long, flat approach to the area makes barricading with boulders impractical. A pipe fence will effectively protect this area from vehicle traffic.

This project will go a long way toward improving riparian area conditions in Happy Valley, with the long-term benefits of big shady trees, vigorous stream side vegetation, and a higher water table. All of these factors add up to a special environment for people to live, work and play in, and a very important habitat for wildlife.

## **Scope of work: Objectives and Benefits**

### **Objective #1:**

Restrict livestock access to an existing riparian area

#### **Benefits:**

- \* Removes the negative impacts of livestock overuse in the riparian area (compaction, removal of vegetation)
- \* Provides an opportunity for natural regenerative processes to occur

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### **Objective #2:**

Provide water sources for livestock in upland areas

#### **Benefits:**

- \* Eliminates the need for livestock access to the riparian area
- \* Improves distribution of livestock
- \* Provides for the continued viability of the livestock grazing operation through improved range management practices

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### **Objective #3:**

Enhance natural regeneration processes in riparian areas by reducing the impact of high energy water flows and holding water on site for extended periods during low flows

#### **Benefits:**

- \* Reduces channel cutting and scouring
- \* Reduces vegetation loss
- \* Improves opportunity for vegetation establishment
- \* Ultimately results in a higher water table

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### **Objective #4:**

Control vehicle use in the riparian area

#### **Benefits:**

- \* Eliminates vehicle caused vegetation destruction and soil compaction from an area of high regeneration potential
  - \* Results in an increase in riparian vegetation
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**Scope of work: Task Descriptions**

**Task #1 Description: Cultural Resource Clearance and Biological Assessment and Evaluation**

Cultural resource surveys will be completed for all ground disturbing activities (fenceline, pipeline, stream channel structures and pipe barrier construction) in compliance with the National Historic Preservation Act. A Biological Assessment and Evaluation will be completed in compliance with the Endangered Species Act.

**AWPF task cost:** 0

**Deliverable description:** Reports: Cultural Resource Clearance and Biological Assessment and Evaluation

**Deliverable due date:** June 1997

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**Task #2 Description: Buckhorn water delivery system**

Improve Buckhorn Spring box. Construct 1 3/4 miles of pipeline, install storage 10,500 gallon storage tank (transport by helicopter), solar pump, solar panels and troughs.

**AWPF task cost:** \$18,724

**Deliverable description:** Photos of project in progress, and of completed project. Written description of project.

**Deliverable due date:** Oct. 1997

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**Task #3 Description: Paige Creek Riparian Area Exclosure**

Construction of approximately 2 miles of fence to restrict livestock access to the Paige Creek riparian exclosure. Fence will be 4-strand barbed wire with top wire at 42 inches above the ground, next wire 12 inches below top wire, next two wires spaced at 7 inches, with the bottom wire smooth and 16 inches above the ground. Much of this task will be accomplished by a 20 person crew from the Tohono O'Odham Nation, with supervision by Forest Service personnel. This crew works as volunteers during non-fire season months, charging only for per diem (volunteer agreement is in place). The budget for this task, and the other tasks which the crew will work on reflect the per diem charge and donated time.

**AWPF task cost:** \$16,179

**Deliverable description:** Photos of project in progress, and of completed project. Written description of project.

**Deliverable due date:** Jan. 1998

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**Task #4 Description: Construction of stream channel structures**

Location A: Construct single fence dam 16 feet wide and 2 feet tall. Armor the bank with gabion baskets.

Location B: Five structures, each 1 foot tall and 10 feet wide.

Locations C & D: Two long gabion structures keyed in about 1.5 feet.

Location E: Four diversion dams (gabions) Seed stream banks and cover seeded area with matting. Fence seeded area to prevent animal damage.

Location F & G: Two long gabion structures keyed in about 1.5 feet.

Location H: Five diversion dams

This task will be accomplished by the Tohono O'Odham crew with FS supervision.

**AWPF task cost:** \$22,048

**Deliverable description:** Photos before project, during project and at project completion. Written description of project.

**Deliverable due date:** Oct. 1998

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**Task #5 Description: Construction of vehicle barrier fence.**

This barrier fence will be constructed with 2 3/4" drill stem (pipe) posts and top rails, and 3/4" sucker rod rails. It will be located adjacent to FS road #35 in the Paige Well area. This task will be accomplished by the Tohono O'Odham crew with FS supervision.

**AWPF task cost:** \$7,749

**Deliverable description:** Photos before project, during project and at project completion. Written description of project.

**Deliverable due date:** Oct 1998

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**Task #6 Description: Monitoring.**

Baseline monitoring with photo points in fenced riparian areas has already been initiated. Four new riparian photo points will be established. Four stream channel transects will be established to measure changes in channel morphology and vegetation, following established monitoring protocol which is described in an attached document. These transects will be read every two years. Rangeland vegetation monitoring was accomplished in 1995 and will be reevaluated in 2000. Wildlife monitoring, particularly for neo-tropical migratory birds is ongoing, through efforts of the Arizona Breeding Bird atlas as well as the Forest Service. All monitoring data will be available to AWPf within 30 days of collection.

**AWPF task cost:** 0

**Deliverable description:** Copies of monitoring data.

**Deliverable due date:** Oct. 1999

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**PROJECT BUDGET**

	FUNDING SOURCES			
	AWPF	Other	Donated Mat./Serv.	TOTAL
		USFS		
<b>ADMINISTRATION COSTS (1)</b>				
Range Mgmt Spec/Ecologist	2,920	1,080		4,000
Vehicle	254	96		350
<b>DIRECT LABOR COSTS (2)</b>				
Hydrologist	913	837		1750
Ecologist		600		600
Biologist		1,250		1250
Para-Archeologist		650		650
Supervisory Technicians	5,110	1,890		7000
Tohono O'Odham Crew	12,000		8,000	20,000
FS Crew	2,400	800		3,200
Dozer Operator	1,460	540		2,000
FS Signing		1,000		1,000
<b>OTHER DIRECT COSTS</b>				
Vehicles	1,277	473		1,750
Helicopter	365	135		500
Materials - All tasks	29,348	25,300		54,648

	FUNDING SOURCES			
	AWPF	Other	Donated Mat./Serv.	TOTAL
<b>OUTSIDE SERVICES</b>				
Loader and Dump Truck Rental	2,500			2,500
Welder & Operator	1,250			1,250
Dozer Rental & Delivery	2,500			2,500

CAPITAL OUTLAY				
Tech/Industrial Equip. (3)				
Water (CAP/Effluent)				
Other (describe)				
Pipe Fusing Machine	400	1,229		1,629
Solar Panels w/ tracker	2,000	4,000		6,000
Solar Pump		1,800		1,800
<b>TOTALS</b>	<b>64,697</b>	<b>41,680</b>	<b>8,000</b>	<b>114,377</b>

- (1) Administration costs are limited to 5% of the total dollars requested for a project.
- (2) Include wages, salaries, and fringe benefits.
- (3) Attach list of capital equipment expenditures over \$1,000.00

**Budget Information:**

The Santa Catalina Ranger District will commit funding the Forest Service share of the project. This money will come from several fund sources; Range Betterment, Range Management Program, Ecosystem Management Planning and Inventory, Wildlife Program, Watershed Program, and Recreation. These funds will be deposited into a single Santa Catalina Ranger District account. All expenses related to this project will be charged to this single account. Reports from this account can be produced quarterly for tracking purposes.

The Coronado National Forest will establish a reimbursable account for all AWPf transactions. Each quarter, a Bill of Collection will be prepared by this office and presented to the AWPf. A detailed account of how expenses are distributed for each task follows:

<b><u>Task #1-</u></b>	<b><u>AWPF</u></b>	<b><u>Forest Service</u></b>	<b><u>Donation</u></b>	<b><u>Total</u></b>
Arch. Survey	0	650	0	650
Biological Survey	<u>0</u>	<u>650</u>	<u>0</u>	<u>650</u>
Total	0	1300	0	1300

**Task #2-**

Range Mgt. Spec.	913	337	0	1250
Supervisory Techs.	1460	540	0	2000
FS Crew	2400	800	0	3200
Dozer Operator	730	270	0	1000
Dozer	1250	0	0	1250
Materials	8750	17679	0	26429
Equipment	2400	7029	0	9429
Helicopter Time	365	135	0	500
Vehicles	<u>456</u>	<u>169</u>	<u>0</u>	<u>625</u>
Total	18724	26959	0	45683

**Task #3-**

Range Mgt. Spec.	913	337	0	1250
Supervisory Techs.	1460	540	0	2000
Tohono O'Odham Crew	4800	0	3200	8000
Dozer Operator	730	270	0	1000
Dozer	1250	0	0	1250
Materials	6570	2430	0	9000
FS Signing	0	1000	0	1000
Vehicles	<u>456</u>	<u>169</u>	<u>0</u>	<u>625</u>
Total	16179	4746	3200	24125

**Task #4-**

Ecologist	548	202	0	750
Hydrologist	913	337	0	1250
Supervisory Techs.	1460	540	0	2000
Tohono O'Odham Crew	4800	0	3200	8000
Materials	11426	4228	0	15654
Loader & Dumptruck	2500	0	0	2500
Vehicles	<u>401</u>	<u>149</u>	<u>0</u>	<u>550</u>
Total	22048	5456	3200	30,704

**Task #5-**

Range Mgt. Spec.	548	202	0	750
Supervisory Techs.	730	270	0	1000
Tohono O'Odham Crew	2400	0	1600	4000
Materials	2602	963	0	3565
Welder & Operator	1250	0	0	1250
Vehicles	<u>219</u>	<u>81</u>	<u>0</u>	<u>300</u>
Total	7749	1516	1600	10865

**Task #6-**

Hydrologist	0	500	0	500
Ecologist	0	600	0	600
Biologist	<u>0</u>	<u>600</u>	<u>0</u>	<u>600</u>
Total	0	1700	0	1700

**Existing Plans:**

Coronado National Forest Land Management Plan, 1987: This plan identified the lands within the project area as suitable for livestock grazing and dispersed recreation. In addition, riparian areas within the project area are a high priority for treatment and protection.

Happy Valley Allotment Management Plan, initiated in 1994: This plan will be completed in 1997. The planning process has a number of participants including the grazing permittee, the Arizona Department of Game and Fish, the San Pedro Natural Resources Conservation District, Tucson Audubon Society, and the Sierra Club, Rincon Chapter. The plan is at the point of preferred alternative selection. All of the projects proposed here are consistent with the preferred alternative.

**Community Support:**

A number of groups have expressed support for projects of this type in the Happy Valley area. They include the Arizona Department of Game and Fish, the San Pedro NRDC, the Tucson Audobon Society and the Sierra Club, Rincon Chapter. Enclosed is a letter of support from Dave Mathews, District Conservationist, Natural Resources Conservation Service, Willcox Field Office.



**Personnel:**

Jennifer Ruyle - Ecologist, Coronado National Forest, Santa Catalina Ranger District

Tim Connor - Range and Watershed Staff, Coronado National Forest, Santa Catalina Ranger District

Robert Lefevre - Hydrologist and Watershed Program Administrator, Coronado National Forest

Deborah Bieber - Wildlife Biologist, Coronado National Forest, Santa Catalina Ranger District

Steve Hensel - Para-Archeologist and Resource Technician, Coronado National Forest, Santa Catalina Ranger District

Dallas Van Gordon - Forestry Technician, Coronado National Forest, Santa Catalina Ranger District

Gregorio Urquidez - Forestry Technician, Coronado National Forest, Santa Catalina Ranger District

Pete Schwab - Forestry Technician - Helitack, Coronado National Forest, Santa Catalina Ranger District

Jesus Montiel - Forestry Technician, Coronado National Forest, Santa Catalina Ranger District

Ted Risch - Forestry Technician, Coronado National Forest, Santa Catalina Ranger Di

**State Historic Preservation Office Information (must be submitted)**

**SHPO Certification**

This certification is required by regulations implementing the State Preservation Act (A.R.S. 41-861 through 41-864), effective July 24, 1982. It is understood that recipients of state funds are required to comply with this law throughout the project period. The State Historic Preservation Act mandates that all State agencies consider the potential of activities or projects to impact significant cultural resources. Each State agency is required to consult with the State Historic Preservation Officer with regard to those activities or projects that may impact cultural resources.

**PROJECT TITLE:** Happy Valley Riparian Area Restoration Project

Please answer the following questions which provide information about the potential of the project to impact cultural resources:

Does the project have the potential to disturb the surface and/or subsurface of the ground?

YES:  X  NO: \_\_\_\_\_

Are there any buildings or structures (including mines, bridges, dams, canals, etc.) which are 50 years or older within the project area that have the potential to be disturbed by the proposed activity?

YES:  X  NO: \_\_\_\_\_

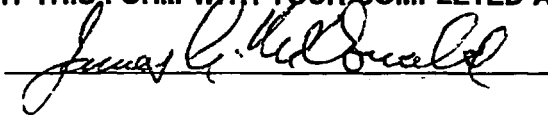
Are there any known prehistoric and/or historic archaeological sites within the project area?

YES:  X  NO: \_\_\_\_\_

Are you aware of any archeological investigations that have been performed within one (1) mile of the project area?

YES:  X  NO: \_\_\_\_\_

If you have answered "NO" to all of the above questions, please sign on the line below certifying that the activity or project is in compliance (and will remain in compliance throughout the project period) with the State Historic Preservation Act. **YOU MUST SUBMIT THIS FORM WITH YOUR COMPLETED APPLICATION.**



Authorized Signature

7/31/96

Date

If you have answered "YES" to any of the questions above, please answer all applicable questions on the other side of this form.

If you answered yes to question #1, specifically identify any surface or subsurface impacts that are expected. Attach extra sheets if more space is needed.

See Attached.

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If you answered yes to question #1, describe the current ground surface condition within the entire project area boundary (i.e., is the ground in a natural undisturbed condition, or has it been bladed, paved, graded, used for agriculture, etc.). Attach extra sheets if more space is needed.

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If you answered yes to question #2, list the sites, their names, and provide a brief description of the site.

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Has the project area been previously surveyed for cultural resources by a qualified Archaeologist?

YES: \_\_\_\_\_ NO:   X  

DON'T KNOW: \_\_\_\_\_

If yes, submit a copy of the Archaeologist's report with your application.

**YOU MUST SUBMIT THIS FORM WITH YOUR COMPLETED APPLICATION**

1. Identify any surface or subsurface impacts that are expected.

Area A: Ground disturbance will involve construction of approximately 100 post holes. Area B: Hand excavation into the sides of the stream channel. Area C: Ground clearing and possibly a little excavation (with a bulldozer) for the water tank and troughs. Surface scraping and brush removal for the water line. Area D: Ground clearing by hand and bulldozer along the proposed fenceline and excavation of post holes.

2. Describe the current ground surface condition within the entire project area boundary (i.e., is the ground in a natural undisturbed condition, or has it been bladed, paved, graded, used for agriculture, etc.)

The project areas are all in a natural undisturbed condition.

3. Are there any buildings or structures (including mines, bridges, dams, canals, etc) which are 50 years or older within the project area that have the potential to be disturbed by the proposed activity? Yes

A U-shaped rock alignment, partially enclosing an area approximately 30 x 20 m. in size. The alignment may have been a corral or served as a foundation for a fence.

4. Are there known prehistoric and/or historic archaeological sites within the project area? Yes.

See above.

5. Are you aware of any archaeological investigations that have been performed within one (1) mile of the project area? Yes

1. CRR #1980-05-034
2. CRR #1985-05-055
3. CRR #1986-05-110
4. CRR #1987-05-021
5. CRR #1987-05-038
6. CRR #1988-05-003
7. CRR #1991-05-094
8. CRR #1991-05-105

**AWPF Task Form for Wells**

<b>Item</b>	<b>Applicant's response</b>
Well type/s: e.g., monitor, piezometer, production, etc.	
How will these wells be used: e.g., to measure water levels, to measure water quality, to supply water to livestock, etc.	
Number of wells of each type?	
Approximate depths (min.-max.)	
Approximate diameter (min.-max.)	
Pump size (gpm) if applicable	
Well casing material	
Estimated depth and length of perforated or screened interval	
Well drilling method	
Cost per well in budget	
Have you included a map indicating the approximate location of the wells? If NO, please list parameters used to select well locations.	
What will happen to the wells after the AWPF project is completed?	
Additional information if required	

**AWPF Task Form for Fencing**

<b>Item</b>	<b>Applicant's Response</b>
<b>Fence type:</b>	<b>Riparian area livestock enclosure</b>
<b>Fence description:</b>	<b>Four strand barbed wire fence. Bottom wire smooth. Wire spacing as required by Forest Service regulations and the Coronado Forest Land and Resource Management Plan</b>
<b>Purpose of fence:</b>	<b>Exclusion of livestock from riparian area to enhance natural regeneration processes</b>

**AWPF Task Form for Fencing**

<b>Approximate fence length:</b>	<b>2 miles</b>
<b>Approximate number of gates to be installed:</b>	<b>4 (wire)</b>
<b>Approximate number of cattle guards to be installed:</b>	<b>none</b>
<b>Cost of fence in budget:</b>	<b>\$24,125</b>
<b>Cost of gates and cattle guards in budget:</b>	<b>\$0</b>
<b>Have you included a map indicating the approximate location of all fence segments? If NO, please explain WHY.</b>	<b>Yes</b>
<b>Who will be responsible for fence maintenance once the fence is complete?</b>	<b>Grazing permit holder</b>
<b>Additional information if required</b>	

**AWPF Task Form for Water Development Systems**

Item	Applicant's response
Source or sources of water	Spring
Quantity of water (ac-ft/year)	3 gallons/minute
If source is surface water, do you have a water right for this quantity of water?	Yes
If you have a surface water right, does your project change the point of diversion, place of use, or type of use? If so, describe.	Project will add two places of use in upland area.
If source is an existing well, what is the well's registration or identification number?	N/A
If source is a new well/s, have you completed and attached a task form for the well/s?	N/A
Distribution system:	<p>pipelines: 1  length: 1 3/4 miles  diameter: 2"  pipe type: poly  above ground or below ground: above</p> <p>storage:  tanks: number, type and capacity: 1, fiberglass, 10,500 gallon  troughs: number, type and capacity: 2, steel, 850 gallon</p> <p>distribution energy source:  gravity:  pumps: 1, solar</p>
Maintenance of the system:.	Responsible party during project lifetime: Grazing permittee Responsible party after project is complete: Grazing permittee
Have you included a map indicating the approximate location of the system's components? If NO, please explain WHY.	Yes
Cost of system in budget?	\$45,683
Additional information if required.	

**AWPF Task Form for Revegetation Projects**

Item	Applicant's response
Species type/s and approximate numbers by species.	<b>Area less than 1/4 acre will be seeded with native grasses (sideoats grama, plains lovegrass, and bottlebrush squirrel-tale), then covered with straw mulch matting.</b>
List main reasons location/s is/are suitable for revegetation.	<b>Area is a sandy "blow-out" along the stream channel. This treatment is recommended by the Forest Hydrologist, and has been successfully implemented in other areas (eg. Redrock Canyon). This treatment is in addition to channel stabilization structures.</b>
Current depth to water and variation throughout the year. If not available, please explain WHY.	<b>Depth to water table varies from 1 foot to 10 feet.</b>
List revegetation methods	<b>Seed will be raked in, then covered with straw mulch matting.</b>
When will revegetation occur? (month and year)	<b>July, to take advantage of monsoon moisture.</b>
Is there a reasonable chance for natural re-establishment?	<b>This area is growing in size. The soil is too sandy for natural regeration to occur in a timely manner. Seeding and protection with mulch will help to speed the stabilization process.</b>
Will site be maintained? If YES, list methods.	<b>Site will be protected and monitored. If seeding is unsuccessful, the reason for failure will be determined and alternative treaments will be evaluated.</b>
Will you protect site/s from damage by animals? If YES, list methods.	<b>Yes, area will be fenced.</b>
Additional information if required.	



Item	Applicant's response
Type of recharge facility: constructed or managed	
Is this a pilot or full-scale recharge facility?	
Permit considerations:	
Has an Underground Storage Facility permit been filed: Y/N). If Y, provide one copy of the hydrologic report	
If N, supply the following information:	<b>***If this information is not available, but will be gathered during a feasibility study, please indicate this.***</b>
When will the Underground Storage Facility permit be filed?	
Type(s) and source(s) of water to be stored	
Maximum annual amount of water that may be stored at the facility	
Size of the recharge area in acres	
Depth to water beneath recharge area	
List and values of aquifer and unsaturated zone parameters that have been determined	
List of aquifer and unsaturated zone parameters that must still be determined	
Have you included a map indicating the primary components of the recharge facility? (Y/N)	
Additional information if required	

Item	Applicant's response
<b>Groundwater monitoring (Y/N): If Y,</b>	
Depth to water (Y/N): if Y	
method?	
approx. # of sample pts.?	
sample frequency?	
start date & end date?	
GW quality (Y/N): if Y	
constituents?	
approx. # of sample pts.?	
sample frequency?	
start date & end date?	
<b>Surface water monitoring (Y/N)</b>	
Discharge (Y/N): if Y	
method?	
approx. # of sample pts.?	
sample frequency?	
start date & end date?	
Stage (Y/N): if Y	
method?	
approx. # of sample pts.?	
sample frequency?	
start date & end date?	
SW quality (Y/N): if Y	
constituents?	
approx. # of sample pts.?	
sample frequency?	
start date & end date?	
<b>Photo point monitoring (Y/N):</b> If Y,	<b>Yes</b>

Approximate number of points, and photos per point?	<b>6 points, 2 photos per point</b>
How often will photos be taken?	<b>Every 2 years</b>
Additional information if needed	
<b>Wildlife monitoring (Y/N): If Y</b>	<b>Yes</b>
Aquatic (Y/N): If Y,	<b>No</b>
Which plant and/or animal categories?	
Which parameters?	
How often will monitoring be performed?	
Start and end dates for monitoring?	
Terrestrial (Y/N): If Y,	<b>Yes</b>
Which plant and/or animal categories?	<b>Vegetation, birds</b>
Which parameters?	<b>Vegetation: Age class, canopy cover, composition, utilization Birds: SW willow fly-catcher survey, Breeding Bird Atlas counts</b>
How often will monitoring be performed?	<b>Utilization: annually, other parameters every 5 years Birds: annually</b>
Start and end dates for monitoring?	<b>Bird monitoring is ongoing, vegetation monitoring is ongoing</b>
Additional information if needed	
<b>Fisheries habitat (Y/N): If Y,</b>	<b>No</b>
List abiotic parameters	
List biotic parameters	
How often will monitoring be performed?	
Start and end dates for monitoring?	
<b>Climatic data (Y/N): If Y,</b>	<b>Yes</b>

List types of data?	<b>Temperature and precipitation</b>
How often will monitoring be performed?	<b>Ongoing</b>
Start and end dates of monitoring?	<b>Official recording stations, local residents</b>
Additional information if needed	
<b>Soil monitoring (Y/N): If Y,</b>	<b>Yes</b>
Soil type (Y/N)	<b>Yes</b>
Soil moisture (Y/N): If Y,	<b>No</b>
How often will monitoring be performed?	<b>Ten year cycle</b>
Start and end dates for monitoring?	<b>Monitored in 1995</b>
Additional information if needed	
<b>Channel morphology (Y/N): If Y,</b>	<b>Yes</b>
List parameters measured?	<b>Length, width and depth</b>
How often will monitoring be performed?	<b>2 year intervals</b>
Start and end dates for monitoring?	<b>Start date: October 1997</b>
<b>Aerial imagery: photos/videography (Y/N): If Y,</b>	<b>Yes</b>
List formats that will be used	<b>Aerial photos, 1:24,000 scale</b>
How often will imagery be taken?	<b>Every 10 years</b>
Start and end dates for imagery?	<b>1994 photos are available</b>
Additional information if needed	

<b>Will transects be used (Y/N) during any of the activities mentioned above: If Y,</b>	<b>Yes</b>
List which activities involve the use of transects	<b>Riparian area inventory (see attached protocol description)</b>
Transect dimensions? (If more than one type/size, please indicate)	<b>100 foot, variable width</b>
Approximate number?	<b>4</b>
Location selection parameters?	<b>Areas that are most likely to benefit from the proposed project, areas with riparian obligate species present</b>
<b>Will quadrats be established along transects (Y/N): If Y,</b>	<b>No</b>
Quadrat dimensions? (If more than one size/type please indicate)	
Approximate number?	
Location selection parameters?	
Additional information if needed	

## ATTACHMENT

### CORONADO NATIONAL FOREST RIPARIAN INVENTORIES

#### A. Background

We know very little about the Coronado riparian habitats. How many miles of riparian do we have? How wide are these riparian areas and which ones are wet or dry or partially wet or dry?

We need to know about conditions regarding streams banks, type species, age classes, and what uses are taking place in each riparian. This type of information may then provide a basis for observing trend over time and will provide the managers with sufficient information to make management decisions regarding which riparians need management actions, which ones are satisfactory and need no actions at present and what forces are affecting each riparian. Are they man-induced, natural, or a combination of both?

With these needs in mind a system has been developed. The system has a numerical rating system, grading higher points for quantity condition factors. This system may be useful when comparing one riparian with another. As developed the system was not intended to provide data for classifying areas for vegetation series but may be used for classifying. Instead the intention was to note all species within the sampled area - disregarding statistical consideration and man conceived classifications. In this way the vegetation speaks for itself - portraying the habitat very well without hanging a name on it.

In looking at the size of the resource (374-400 possible riparian habitats) with a potential total length of several thousand miles, it was decided to gather data at or near the midpoint of each named drainage. The mid point was picked for several reasons. Generally the middle reaches are areas where uses of all kinds are present and are areas where data is needed to determine what management changes, if any, are needed. Middle reaches are more accessible generally than the headwaters. Middle reaches often reflect overall watershed conditions. Obviously, sampling at several places along a large riparian is more desirable, and may be a next needed effort in the future.

The inventory system we are using is designed to place emphasis on riparian area quality (obligate trees present, age classes, stream bank conditions, water presence) and quantity (length, width). A point system is being used to provide a numerical rating system. The objective again is to rate riparians by their characteristics and conditions. A short discussion follows covering each of the criteria.

#### B. General Transect Information

Prominent objects - trees, rocks, falls, dams, tributaries, etc. are used as "check points" which are recorded as counted and photographed with a wide angle lens. Several other "check

points" which will be easily recognizable in the future are photographed - and arrows drawn on the photo to emphasize the "check" point. These locations will help portray trend conditions in future photographs. Transect length is not set but should be long enough to detect and record each tree species present. The transect and counting is continued for several hundred yards until no additional species are recorded. A schematic map of the transect is made for the folder - and a route map made on 1/2" mile base map showing how to reach the transect.

(1) Species

Each tree species is noted - with higher points for riparian obligates. A stream with a high number of obligates and others showing high diversity will rate high.

(2) Age Classes

Dot tally each size and age class by estimated DBH. Ten points for each age class - when a significant number are recorded. (10% of total)

(3) Length

Ten points is given for each mile of wet perennial stream. If water conditions are uncertain use the solid line - dashed line on the Class C 1/2" to the mile map.

(4) Width

One point for each foot in width of wet stream. One point for each foot in width riparian obligate area. These points make an effort to emphasize quality by wetted area - and the quantity of riparian obligates habitat being supported.

(5) Riparian Conditions

These points are for judgement calls on vigor of the tree species, grazing impacts, canopy closure and growth forms. Canopy closure cools the site more - moderating the micro-climate. Multilayers refers to the growth forms of trees and shrubs. (More habitats are present with multilayering.)

(6) Bank Conditions

These are judgement calls reflecting both natural and man caused forces such as watershed conditions, (stable banks - little erosion) bare soil or cover (grazing

pressure - soil condition), and richness of vegetation (grass, shrubs, forbes, etc.)

(7) Narrative

The narrative section is for any and all pertinent observations. Animals seen, current weather - storms impacts, special items noticed, and especially recommendations for management.

C. Summary

This system is intended to capture all observations, to set riparian areas apart by a numerical rating and to establish areas to return to for future comparisons.

It is not a statistically established sampling method. It can be used for classification purposes as prescribed by September 1983 riparian handbook. It is intended that a folder be established for each riparian examined, with a total copy on the District and one in the S. O.

The method can be used quickly - estimating or using a 100 ft. tape, can be performed by anyone who can identify the riparian obligate trees and other trees, and will provide the Ranger with some data to make decisions regarding recreation uses, grazing systems, etc.





## Riparian Rating System



Record scores on the front under "Numerical Rating"

Riparian Transect Name \_\_\_\_\_

Factor		Score
1. Tree Species	10 points for each "true" riparian species such as cottonwood, willow, sycamore	_____
	5 points for each "other species such as oak, juniper	_____
2. Age Classes	10 points for each age class adequately represented (10% of total)	_____
3. Length of Stream	10 points for each mile of wet perennial stream	_____
	5 points for each mile of ephemeral stream	_____
4. Width of Stream	1 point for each foot width (average) of wet stream	_____
	1 point for each foot width (average) of riparian influence area	_____
5. Riparian Conditions	5 points for high plant vigor	_____
	5 points for acceptable grazing use	_____
	5 points if canopy is closed	_____
	5 points if canopy is multilayered	_____
6. Streambank Conditions	5 points "little or no bare soil"	_____
	5 points for presence of shrubs, grasses, etc.	_____
	5 points for stable banks - no erosion	_____
Total Points		_____



United States  
Department  
Of  
Agriculture

Natural  
Resources  
Conservation  
Service

Willcox Field Office  
247 South Curtis  
Willcox, Arizona  
85643

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Arizona Water Protection Fund Commission  
Arizona Department of Water Resources  
Program Planning and Management  
500 North Third Street  
Phoenix, Arizona 85004

July 29, 1996

Subject: Happy Valley Riparian Restoration Project - Water Protection  
Fund Grant

The United States Department of Agriculture-Natural Resources  
Conservation Service, Willcox Field Office is writing you in support  
of the proposed Happy Valley Riparian Restoration Project grant  
proposal.

We feel that this is a worthwhile and useful expenditure of Water  
Protection Fund monies. The proposed project, if approved, will help  
lead to the restoration of a deteriorating riparian area. Paige Creek  
has recently received above average flows due to a large fire in it's  
watershed in 1994. Rest from grazing and recreational use in the  
riparian corridor will more quickly restore important stream side  
species and heal active gullying. The San Pedro River will also  
benefit by decreased peak flows and an increase in below ground  
recharge. Other benefits include improved water quality and wildlife  
habitat.

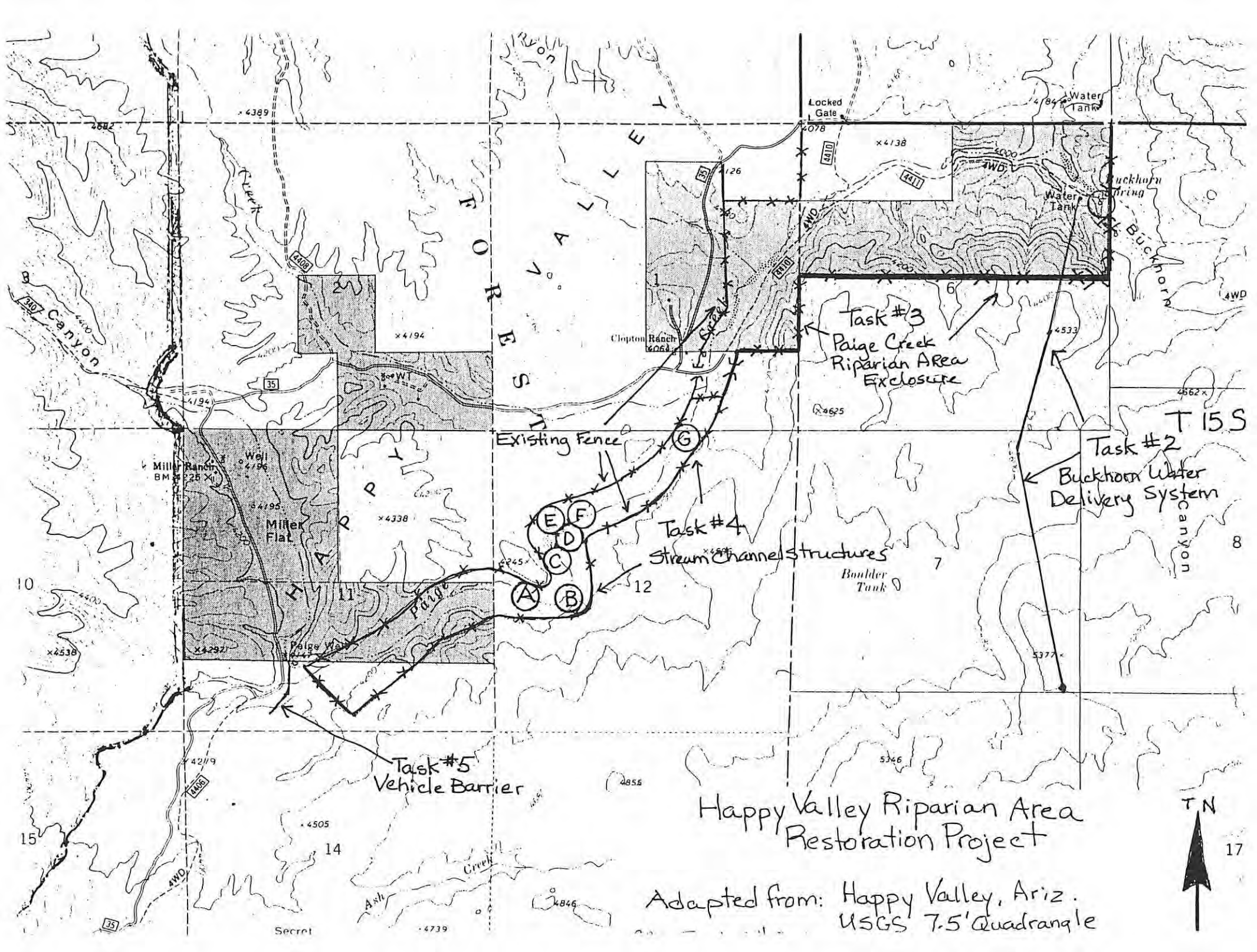
We have been involved in the past in implementing a similar plan for  
this portion of Paige Creek, with the Forest Service and the allotment  
permittee. Due to various circumstances, the plan was not initiated.

The Natural Resources Conservation Service hopes that the Water  
Protection Fund Commission will allocate the necessary funding toward  
this worthwhile project.

Sincerely,



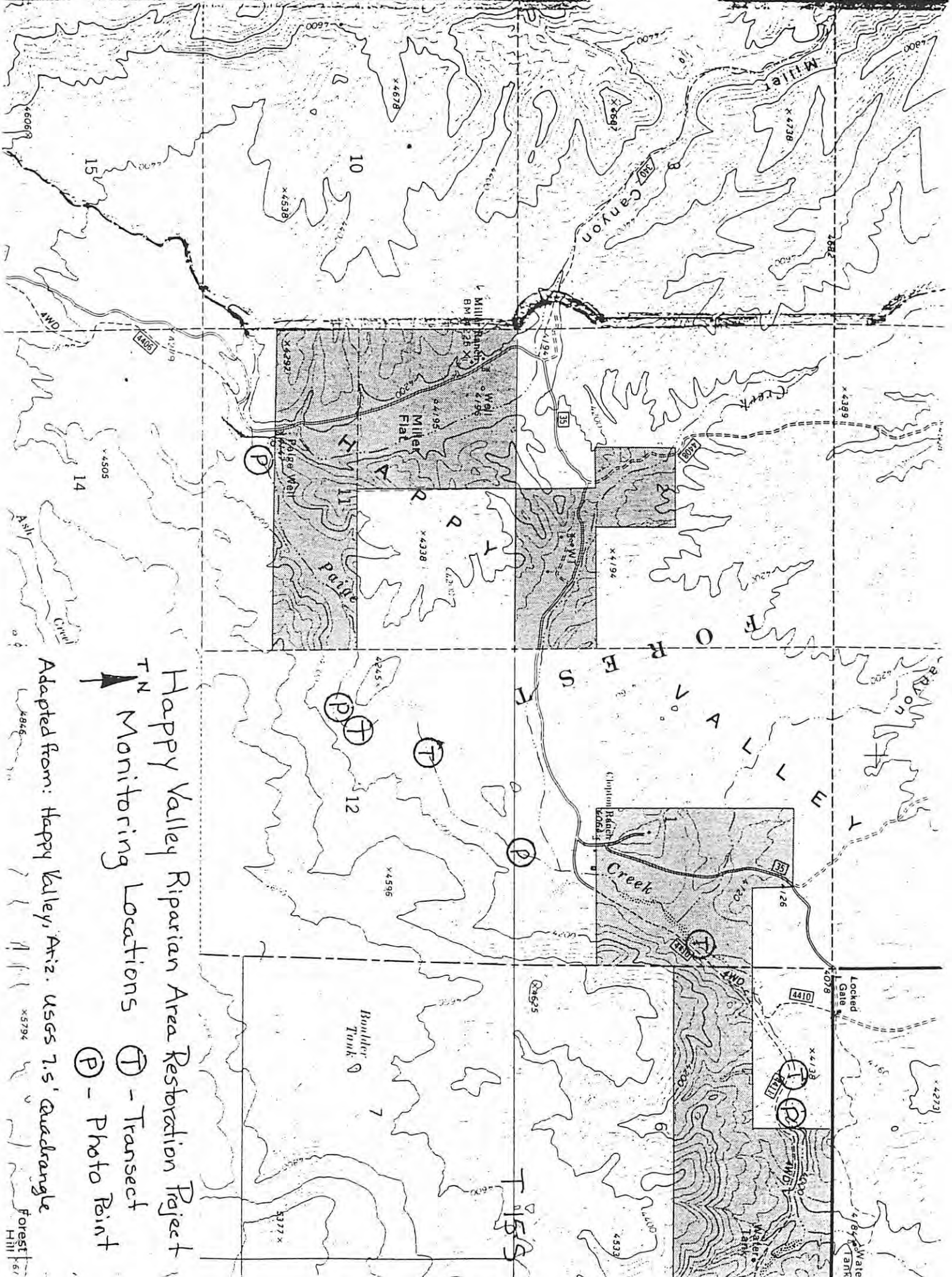
Dave Matthews  
District Conservationist



# Happy Valley Riparian Area Restoration Project

Adapted from: Happy Valley, Ariz.  
USGS 7.5' Quadrangle





Happy Valley Riparian Area Restoration Project  
 Monitoring Locations  
 T - Transect  
 P - Photo Point

Adapted from: Happy Valley, Ariz. USGS 7.5' quadrangle









































**RANGE ENVIRONMENTAL ANALYSIS MAP**

Happy Valley Allotment  
1995

Santa Catalina Ranger District  
Coronado National Forest

Drafted By: Stewart, Date 9-95 Field Work By: Connor, Stewart, and Humphrey, Date 7-95

**RANGE ENVIRONMENTAL ANALYSIS MAP LEGEND**

	Patented Land (Red)		Excellent (Light Green)
	Administrative Site (Green)		Good (Yellow)
	Closed to grazing - Show reason (Orange)		Fair (Sky Blue)
	Should be closed to grazing - Show reason (Orange outline)		Poor (Purple)
	Special problem area - Show kind of problem		Very Poor (Red)
	Proposed plant control - Show kind of plant		
	Proposed seeding area		
	Exclosure (Study plots and areas protected against entrance of animals)		
	Stack driveway (Brown)		
	Allotment (exterior) boundary (Show herbs or fenced portion) (Heavy black)		
	Fence (Show ADP number)		
	Gate		
	Cattle guard		
	Natural barrier		
	Vegetative type for sub-typal base and condition class line		
	C4 ○ Clusters (Numbered consecutively by allotment)		
	P3 ○ Fenced segment (Numbered consecutively by allotment)		
	PH 2 ○ Photo point (Large dot shows exact location)		
	NAC		
			Rock or Barron-Mae Range (No Color)
			Dependable water. Use broken circles for temporary waters. Lower circle white on colored maps (Show ADP number)

