Arizona Water Protection Fund
FY 2009 Grant Application Review

Application # WPF0372 **Applicant:** CORONADO RESOURCE CONSERVATION & DEVELOPMENT

Title of Project: BABOCOMARI RIVER RIPARIAN PROTECTION PROJECT

Additional materials were submitted with this application that could not be reproduced and distributed for review. These materials may be reviewed in person at the Arizona Water Protection Fund offices at (3550 N. Central Avenue, 4th Floor, Phoenix). The additional materials available are the following:

_____ **Maps**
_____ **Photographs**
✓ **Disk**
_____ **Other**

COPY

Arizona Water Protection Fund
Application Cover Page
FY 2009

WPF0372

Title of Project: Babocomari River Riparian Protection Project

Type of Project:
- ☒ Capital or Other
- ☐ Water Conservation
- ☐ Research

Stream Type:
- ☒ Perennial
- ☐ Intermittent
- ☐ Ephemeral

Your level of commitment to maintenance of project benefits and capital improvements:
☐ < 5 years ☐ 5-10 years ☐ 11-15 years ☒ 16-20 years

Applicant Information:
Name/Organization: Coronado Resource Conservation & Development
Address 1:
Address 2:
City:
State:
ZIP Code:
Phone:
Fax:
Tax ID No.:

Inside an AMA: Yes ☐ No ☒

If yes, which AMA:
- ☐ Phoenix
- ☐ Tucson
- ☐ Prescott
- ☐ Pinal
- ☐ Santa Cruz

Type of Application:
- ☒ New
- ☐ Continuation

Contact Person:
Name: Judy Leighton
Title:
Phone:
Fax:
e-mail:

Any Previous AWPF Grants:
☒Yes ☐No

If yes, please provide Grant #(s):
08-151WPF, 00-103WPF, 03-116WPF

Arizona Water Protection Fund Grant Amount Requested:

$118,125.00

If the application is funded, will the Grantee intend to request an advance:
☒**Yes** ☐**No**

Matching Funds Obtained and Secured:

Applicant/Agency/Organization:	Amount ($):
1. Applicant	2,500.00
2. NRCS-EQIP & WHIP contracts (BR)	394,809.00
3. US FWS & AGFD/Research Ranch	40,000.00
Total:	437,309.00

Has your legal counsel or contracting authority reviewed and accepted the Grant Award Contract General Provisions?
☒Yes ☐No ☐N/A

Signature of the undersigned certifies understanding and compliance with all terms, conditions and specifications in the attached application. Additionally, signature certifies that all information provided by the applicant is true and accurate. The undersigned acknowledges that intentional presentation of any false or fraudulent information, or knowingly concealing a material fact regarding this application is subject to criminal penalties as provided in A.R.S. Title 13. The Arizona Water Protection Fund Commission may approve Grant Awards with modifications to scope items, methodology, schedule, final products and/or budget.

Richard Searle	Vice President
Typed Name of Applicant or Applicant's Authorized Representative	**Title and Telephone Number**
Richard Searle	6/6/08
Signature	**Date Signed**

RECEIVED
JUN - 9 2008
ARIZONA WATER PROTECTION FUND

CORONADO
Resource Conservation and Development Area, Inc.
656 N. Bisbee Avenue, Willcox, AZ 85643 (520) 384-2229 x122 Fax: (520) 384-2735

June 4, 2008

Arizona Water Protection Fund Commission
Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, Arizona 85012

RE: Babocomari River Riparian Protection Project Grant Proposal

To Whom It May Concern:

Please find enclosed five (5) signed grant applications and an electronic copy of the scope of work and budget information.

Under the section "Evidence of Control and Tenure of Land" we have submitted a limited realty report for the Babocomari Ranch. Should the project be funded, Coronado RC & D would obtain the actual deed to the property and submit the necessary documentation promptly to grantor.

Sincerely,

Richard Searle
Vice-President
Coronado RC & D Council

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I. Executive Summary

Southern Arizona is one of the fastest developing areas in the United States, putting ever increasing pressure upon natural resources in the area. This project was developed in response to growth and will focus on the protection of the Babocomari River and key tributaries through the implementation of practices, monitoring and the collection of comprehensive data. This information will be used to make management decisions that will have long-term beneficial impacts on the River and its riparian areas.

This project will implement a three-step process to conserve significant riparian assets on two adjoining ranches in southeast Arizona, the Babocomari Cattle Ranch and the adjoining Appleton-Whittell Research Ranch of The National Audubon Society. The water, plant and animal resources of this system are diverse and unique in the fact that they are in a rarely found intact condition with good environmental and hydrologic conditions.

The first step will install 2 miles of livestock fence to separate a stretch of perennial stream on the Babocomari River from an upland pasture. The upland pasture has adequate water but if livestock go down into the riparian area, they tend to stay rather than travel back to the higher more rugged terrain. This fence will remove cattle access to the riparian area from that pasture.

Step two will establish two permanent vegetative monitoring sites in riparian areas along the Babocomari River (stations 1 and 2), two on riparian areas of O'Donnell creek (stations 3 and 4) and one on in the riparian area of Turkey creek (station 5), both significant tributaries of the Babocomari. Three monitoring sites will be installed in the sacaton and grasslike plant communities on the floodplains of O'Donnell, Hay and Lyle Canyons (stations 8, 9 and 10 respectively) and two on the Babocomari Cienega (stations 6 and 7), all on the Babocomari ranch. Two transects will be maintained on the Research Ranch in similar plant communities on the floodplains of O'Donnell (station 11) and Turkey Canyons (station 12). These will be used to gather information on hydrologic and vegetative function. Monitoring will be done to document present day, baseline conditions and establish trends.

In step three, data will be gathered and assembled into resource reports that can be used by the cooperating ranches to make management decisions to maintain and / or improve vegetative conditions on the Babocomari River, the Babocomari Cienega and sacaton floodplains along Lyle, O'Donnell and Turkey Creeks. Information gathered in the project as well as methods used and benefits of the project will be presented to a wide audience through multiple avenues outlined in an outreach plan. Both properties protect streams and floodplains that will be vital to the health of the Babocomari River system far into the future. With an estimated contribution of 6000 ac. ft. of water annually to the San Pedro River, the Babocomari River and its upper watershed is a valuable Arizona natural resource, worth preserving and protecting for generations to come. This project will serve as a model for protection of desert rivers in southwest North America.

II. Project Overview

A. Background

Description of Area - The Babocomari river is a major tributary of the San Pedro River in Santa Cruz and Cochise Counties, Arizona. Most of the watershed for this river lies west of the highway bridge on State Route 90 at Huachuca City. This 140,000 acre catchment includes rolling grasslands on the Sonoita plain, oak woodlands in the Canelo Hills and the pine-oak forests of the Huachuca Mountains. The Babocomari river runs for nearly 22 miles from near Sonoita eastward to join the San Pedro at Fairbanks at an elevation of 3850 feet. The lower one quarter of the watershed lies east of Highway 90 and consists of shrubby plains that contribute little to the flow of the Babocomari. It is not included in the scope of this proposal.

Elevations in the area range from 4260 feet at Huachuca City with 15 inches of mean annual precipitation to 8400 feet on top of Huachuca Peak with 25 inches of precipitation yearly. The United States Geological Survey (USGS) estimates that the Babocomari river contributes about 6000 acre feet of water to the San Pedro River system each year. The San Pedro is considered one of the most endangered rivers in the United States by conservation groups like The Nature Conservancy (TNC) and agencies like the Bureau of Land Management (BLM). Most of the San Pedro River between the international border and Saint David is federal land administered and managed by BLM as a National Riparian Conservation Area. The continued growth and development of the upper San Pedro basin, especially in Sierra Vista and Fort Huachuca, jeopardizes this vital resource. Protection and monitoring of the Babocomari River, its associated wetlands, floodplains and riparian woodlands will be an important part of the wise use and management of water resources in the area.

History of Area– The area has a long history of human occupation, cultural land use and vegetative change. Human use dates back at least 12000 years. Native American cultures slowly changed from big game hunters to hunter–gatherers and by 600 AD a Hohokam farming culture using ceramics occupied the San Pedro and Babocomari river valleys. It was estimated that 2000 native people lived in the area by the time of Spanish contact in the 1540s. Apache people arrived in the area in the late 1680s and by the time Fr. Kino (1692) visited the Sobaipuri village of Quiburi on the San Pedro, Apache raiding was already taking a toll. A Spanish presidio was established there in 1776 and by 1786 the Spanish were able to buy peace with the Apache with money and food. This lasted until Mexican independence in 1821.

Spanish and Mexican cattle ranchers moved into the area in the early 1800s. The Elias family of Arispe, Sonora applied for title to large areas of land along both the San Pedro and Babocomari rivers in the 1820s. They received title to 35,000 acres along the Babocomari in 1832 and another 37000 acres along the San Pedro in 1827 and 1833. These "Mexican Land Grants"

became the first large scale ranching operations in the area. The newly minted Mexican government could not afford the Spanish program of "Apache pacification" and by the 1850s renewed raiding forced ranching families like the Elias to abandon their land grants for the safety of Sonora. Livestock went wild and were hunted by native people.

The Gadsen Purchase in 1854 brought the area under control of the United States and by the 1860s US Army posts had established in the area to protect citizens and settlers. Camp Wallen was located on the Babocomari river near the old Elias Hacienda in 1866. It was abandoned a few years later and moved to the present day site of Fort Huachuca because of malaria due to swampy conditions along the creek. Anglo and Mexican cattleman began to enter the region. By the 1870s Apache raiding was actively being suppressed by the Army and ranching began to prosper and spread. Mining soon followed and boomtowns like Tombstone and Bisbee brought considerable new settlement to the area.

Wealthy Americans began investing in the region. Dr. E.B. Perrin of San Francisco bought the rights to the Babocomari Ranch from the Elias heirs in 1877. In 1903 the US Court of Private Land Claims awarded title to 33,792 acres to the Perrin family. G.H. Howard and George Hearst purchased the San Pedro properties from the Elias heirs in 1879. William Greene purchased the rights to another large area along the San Pedro River from the Camou family of Sonora in 1884. These became the large ranches of the day; unfenced and ranging out as far as livestock could wander from the water in the river. Homesteading began in 1879 and in three years 41 small (160 acre) land claims were filed along the two rivers.

The rapidly growing population needed food and ranching met the needs. In 1882 it was estimated that 3,000 head of cattle were in the region. By 1890 the number was 36,000 head; more than double the current estimated carrying capacity. Severe drought over the next few years resulted in the death of half to three quarters of the livestock in the area, but not before the rangelands were devastated by overgrazing. An earthquake in May of 1887 caused a fissured zone the length of the San Pedro valley and changes in stream flow. Large floods in the 1890s initiated gully and channel erosion along both rivers. From 1900 to 1918 the San Pedro River cut down 15 to 20 feet from Fairbanks to Hereford. The Babocomari began to cut down to the new base level established in the San Pedro. Upland vegetation in the lower part of the valleys began to change from grassland to shrub-land. Higher elevation grasslands and woodlands were overgrazed, soils were compacted and runoff and erosion increased. The Huachuca Forest Reserve (currently known as the Coronado National Forest) began in 1905 to protect woodlands and forests from destruction by the demands of mining and settlement.

By the 1930s ranchers were reducing herds and looking for ways to rebuild the ranges. The Taylor Grazing Act of 1934 resulted in adjudication and fencing of the public domain. US Forest Service allotments were fenced and assigned capacities. The Civilian Conservation Corps (CCC)

began doing erosion control and forest and range improvement work on both public and private lands in the area in 1933.

In the late 1940s Soil and Water Conservation Districts (SWCD) began to form and farmers and ranchers in the area joined the Santa Cruz and Hereford SWCDs to receive assistance with projects designed to control erosion and improve management of rangelands, farmlands and woodlands. Riparian vegetation began to develop in the raw river channels of the Babocomari and the San Pedro, rangelands began to recover in the upper watershed and dikes and dams controlled gullies and head cuts. Through the 50s, 60s and 70s conditions slowly improved. Today most of the upper part of the watershed of the Babocomari River is in good to excellent vegetative condition and erosion is minimal. Ranchers today continue to work to improve and maintain rangeland and riparian conditions. Development of private lands in the watershed of the Babocomari River poses much more of a threat to watershed conditions and both surface and ground water supplies than present day ranching practices, and makes it even more important to protect existing riparian ecosystems.

Babocomari Ranch

The Brophy family bought the Babocomari Ranch from the Perrin family in 1935. The Brophys were prominent merchants in the Cochise County mining town of Bisbee. The family immediately set about to rebuild the ranch and rehabilitate the worn out rangelands. The family invited the CCC from Warren (near Bisbee) to work on erosion control structures on the ranch. Under the direction of the Soil Conservation Service these crews built several structures that have been maintained faithfully by the family over the years. One large dam and spillway near the ranch headquarters prevented the historic down-cutting of the Babocomari stream channel from proceeding upstream through the upper watershed of nearly 70,000 acres. This dam continues to function perfectly today.

Current management and goals of the Babocomari Ranch: In 1995 with a change in general management, the Brophy family requested the NRCS and the University of Arizona to work together to inventory the rangeland resources and help the family develop a range management plan for the future. This process was completed and the ranch is working hard to maintain and restore rangeland and riparian resources and protect the environmental values of the ranch and the surrounding area. They have done this and still maintained a productive and viable cattle operation. Since 1995 the ranch has built several miles of new fence. Some of this was done to split large pastures and improve grazing distribution. Some was done to isolate the riparian area of Babocomari creek into a river pasture that is rested the entire spring and summer growing seasons. Others were constructed to realign old fences along ecological site boundaries to better manage grazing in different plant communities. In the last few years the ranch has treated 2000 acres of mesquite infested grasslands by root-plowing and seeding

resulting in extremely productive pasture. Another 1500 acres of whitethorn infested uplands with calcareous soils have been treated with chemicals to restore grassland conditions. Sacaton floodplains are prescribe burned in early spring in a rotation (one third of the acreage yearly) to freshen this grass for grazing in April, May and June. The ranch employs a rest rotation grazing system. In 1995 thirty key areas were selected on the ranch and vegetation transects installed to monitor trends in upland plant communities. Some of these are re-read each year and most have stable trends through the last several years (2002–2006) of severe drought in the southwest. Current plans include more shrub control and water developments to further improve management of riparian areas.

An important aspect of the current management of the Babocomari Ranch is an effort by the family to protect the heart of this historic property with conservation easements (purchase of development rights). Over 1000 acres has been put in easement and plans are to protect 15,000 additional acres. This will allow the family to meet the estate needs of some of the heirs while protecting the vital parts of the ranch, the Babocomari River and the floodplains of its important tributaries from suburban development

Research Ranch:

The Appleton-Whittell Research Ranch is an 8,000 acre property operated by The National Audubon Society. The land ownership is a mixture of private land, BLM land and USFS land. This property has not been grazed since 1967. It consists of rolling grasslands and oak woodlands that was originally several ranch homesteads. The Appleton family purchased the Clark Ranch in 1959 and the Roath (Swinging H) Ranch in 1965. The Appletons spearheaded a unique vision to develop a research facility to allow scientists to study the effects the removal of cattle would have on the ecosystem. In 1967 they removed the livestock and set aside the ranch for ecological research, eventually deeding portions of the private land to National Audubon some years later. In 1980, National Audubon Society assumed management of the facility, which includes as partners the Bureau of Land Management, the U.S. Forest Service, The Nature Conservancy, The Research Ranch Foundation, and Swift Current Land and Cattle LLC Audubon continues to manage the mixed ownership of the Research Ranch as a natural area, a sanctuary for native plants and animals, and a research and educational facility. Several listed species, including native fish, occur within the boundaries of this facility. The Research Ranch has been recognized as an Important Bird Area. It serves as a reference area and control for numerous studies related to the grasslands, birds, mammals, fire, erosion, invasive species and habitat rehabilitation. Researchers from around the country come to work in the native habitats of the Research Ranch and to conduct cross-fence comparisons with adjoining cattle operations.

The Research Ranch contains about two miles of the sacaton floodplain of O'Donnell Canyon, which continues on through the Babocomari Ranch before its confluence with the Babacomari River. Farther upstream O'Donnell canyon has significant riparian areas with woodlands of sycamore, cottonwood, ash, walnut and willow. It has a perennial reach on the Research Ranch above a pair of old concrete dams established during its ranching history. Turkey creek is an important tributary to O'Donnell on the Research Ranch and has an ephemeral riparian reach in the upper part. The other tributary to O'Donnell on the Research Ranch is Post canyon. It has a very limited riparian area and is ephemeral on the ranch except for deep, tinajas which hold perennial water.

B. Goals and Objectives

The GOAL of this project is to preserve the Babocomari River System of SE Arizona

Objectives:

1. ***Construct 2 miles of riparian boundary fence to remove access by livestock from an adjoining upland pasture.***
2. ***Install riparian monitoring transects to gather data for five years on the response of the river and riparian system to climatic and management influences***
3. ***Install transects on 4 tributaries to the Babocomari and monitor for five years to evaluate their impact upon the river and riparian system***
4. ***Establish upland monitoring transects to evaluate the impacts of upland management upon the Babocomari system-read annually for five years.***
5. ***Analyze and summarize data and present that information to the partnering ranchers and the public to be used for management decisions.***

C. Statement of Problems/Causes

The problem that is occurring in this watershed is one that is becoming increasingly common in southern Arizona and that is of rapid growth and development fragmenting the watershed. This changes the hydrology and has a direct impact on rivers and streams in the area. This has created an increased awareness of the need to manage riparian areas to improve and preserve them as without that, they will be a vanished resource.

D. Statement of Solutions

Although this project cannot address the change in rate of development, it will protect an existing riparian system on the Babocomari River. The installation of 2.2 miles of livestock fencing will directly protect the only unfenced section of the Babocomari River through the Babocomari Ranch and the monitoring will be used to analyze the impact of current management and make long term management decisions that will benefit the riparian and stream system. The work will occur on two large Ranches in the area, the Babocomari Ranch , a 30,000 acre privately owned livestock operation which the Brophy family has owned and operated since 1935 and the Appleton-Whittell Research Ranch, an 8,000 acre property operated by the National Audubon Society.

Approximately 2.2 miles of new fencing will be constructed along the north side of the river from the railroad bridge and west to the Cienega pasture fence (see map). This will create a second river pasture that can be managed for maximum vegetation along the river. The perennial reach of the river below this new pasture was fenced in 1996 to form the 2000 acre River Pasture and is managed for maximum vegetation by grazing 2 to 3 weeks in the winter with no grazing the remainder of the year.

Long term benefits will be derived from the data that will allow analysis of the watershed and riparian system and the role of management decisions. Analysis will include but will not be limited to the following 1) Baseline data and assessment of health of the stream, riparian area and surrounding uplands 2) Role of sediment in the riparian system dynamics 3) Factors in tributaries influencing the Babocomari River.

Approximately six miles of the Babocomari River occur on the Babocomari Ranch including the only area of the river with perennial flow (four miles). Most of the important tributaries of the Babocomari deliver their floodwaters and sediment to large floodplains of giant sacaton grass on the ranch. The upper Babocomari River, Hay Canyon, Vaughn Canyon, O'Donnell Canyon and Lyle Canyon empty into the lush sacaton floodplains above the Babocomari cienega at the Ranch Headquarters. These extensive bottomlands are the "sponge" for the Upper Babocomari watershed, capturing ground water during floods and allowing a slow release of surface water into the river below.

A large dam with a concrete drop structure for a principle spillway was built by the Civilian Conservation Corps (CCC) in the late 1930s at the ranch headquarters. This structure kept the entrenched channel of the Babocomari river from moving upstream through the cienega and sacaton floodplains. The stream below has two perennial reaches; one reach, below the CCC dam, is sediment deprived (immediately upstream of the 1882 railroad bridge) and the other has a limited source of sediment being delivered by valley side tributaries (one and a half miles

downstream from the railroad bridge). Both reaches will be monitored in this project. Data from these transects will yield valuable information with respect to the role of sediment in the continued health of the riparian system.

The Babocomari cienega and four miles of the river below it are important wetlands harboring three (federally listed) endangered species (two plants and one fish species), a host of sensitive plant and animal species and a riparian gallery forest of cottonwood, willow, ash and walnut.

Numerous cultural and historic sites also occur on the ranch including the ranch headquarters, the railroad bridges, additional CCC structures, the ruins of US Army Camp Wallen and the Babocomari Indian Village site.

A USGS stream gauging station (established in 2001) is located on the river about three miles downstream from the Babocomari Ranch headquarters in the River Pasture and yields valuable information on the contribution of this part of the watershed to water supplies in the San Pedro River valley.

Paired transects will be established in the sacaton bottom of O'Donnell canyon, one on the Research Ranch, which is ungrazed and will be burned on approximately 10-year intervals, and one on the Babocomari Ranch where the sacaton is grazed periodically is burned more frequently.

Monitoring Methods – Several different methods will be used to monitor conditions along the river, the cienega and sacaton floodplains which flank it and important tributaries.

- **Vegetation monitoring** in the grass and grass-like plant communities of the sacaton bottoms and the cienega will include pace-frequency transects using 100 quadrats with a 40cm x 40 cm frame. This will include five transects on the BR, one transect each in O'Donnell, Lyle and Hay Canyons (stations 10, 9, 8 respectively) and two in the Babocomari cienega (stations 6,7). Two transects will be maintained on the Research Ranch in similar plant communities on the floodplains of O'Donnell (station 11) and Turkey canyons (station 12). These transects will be read yearly in the fall. At each monitoring location photographs will be taken, rainfall recorded and ecological status will be determined using the Interagency (BLM, NRCS, USGS) method "Interpreting Indicators for Rangeland Health". This technique gives insight into the status of the hydrology, stability and biotic integrity of the areas monitored.

- **Riparian woodland area monitoring** will consist of establishing vegetation transects coupled with geomorphic cross sections which will be read yearly in the spring (understory vegetation will also be read in the fall). Two clusters of three transects each will be installed in the under-story of the riparian area along the Babocomari River. The

sampling will use frequency measurements from 80 quadrats with a 16cm x 62cm frame placed half out of the water and half submerged along 40 meters of stream-bank on both sides of the channel. This type of transect will sample both aquatic plant species as well as wetland species of the green line (stream-bank). At each location a 50 tree transect will be installed to monitor over-story riparian tree species. This technique will measure diameter at root collar, height, spacing and tree species composition. In addition, at each transect cluster, three geomorphic cross sections of the river channel and floodplain will be installed and read to monitor erosion and sedimentation of the river channel and stream terraces. Photographs will be taken at each monitoring location, and ecological status will be determined by using the Interagency (BLM, USFS, USGS) method "Riparian Proper Functioning Condition. One of these locations will be at the USGS stream gauging station on the river (station 1). It will be at the same location as an existing pace-frequency transect installed in 1995 to monitor stream terrace vegetation. This location is an area of perennial flow and also a reach where the stream is still receiving sediment from valley side drainages. The other monitoring location (station 2) will be just upstream of the Railroad Bridge one mile below the ranch headquarters. This location also has perennial flow but is in an area where no new sediment is entering the stream system.

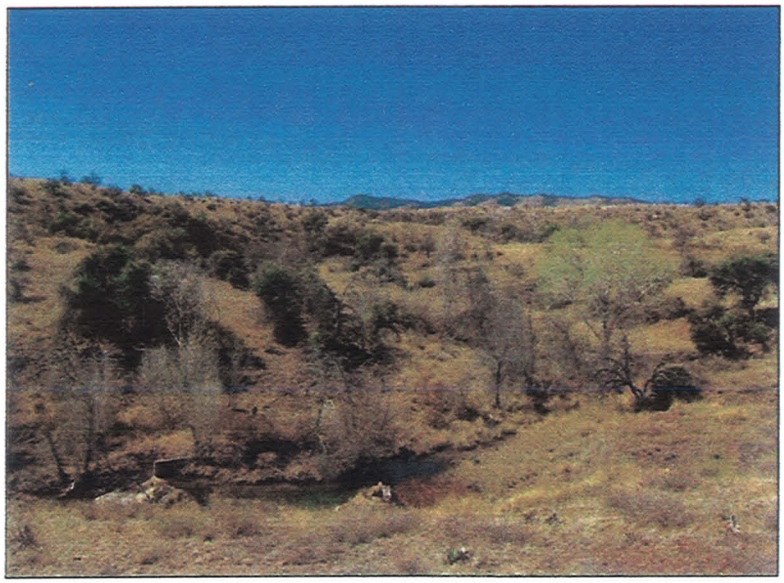
The two monitoring locations contrast each other due to sediment balance and recent grazing history. Monitoring results will determine if use and management actions are maintaining riparian plant communities and protecting soils from erosion and capturing sediment to build banks and floodplain.

Monitoring station #1 on the Babocomari at the USGS stream gauge (above). Monitoring station #2 is just upstream of the railroad bridge and below the ranch

Two riparian woodland monitoring locations will be established in O'Donnell canyon on the Research Ranch; one will be in the perennial reach (station 3) and the other will be downstream in an ephemeral reach (station 4). Another riparian woodland monitoring location will be established in Turkey creek (station 5) an important tributary of O'Donnell.

The riparian areas on the Research Ranch are all recovering from a large fire (the Ryan Fire) which burned in April of 2002 one of the worst drought years on record in Arizona.

Transects on the Research Ranch will use the same methods and techniques as described for the Babocomari Ranch. Monitoring results will be used in an "Adaptive Management" setting to provide feedback to the land owners and managers in making land use and management decisions.



The perennial reach of O'Donnell canyon on the Research Ranch. A new monitoring location will be established here.

An ephemeral reach of O'Donnell canyon on the Research Ranch will be a new monitoring location

Turkey creek riparian transect location on the Research Ranch

Duration – The initial phase of the study will be to install the monitoring transects and read them. Within the scope of this project they will be re-read for the next four consecutive years. Both Ranch properties intend to continue to read these transects for long into the future to assist in management planning and decision making, however the monitoring intervals may be more than one year.

Partners – Each Ranch will support this project by providing access to the investigator through the duration of the study. The two properties will work independently to read their monitoring transects after the completion of this project. Other agencies that will assist in this effort include the Natural Resources Conservation Service (USDA) in Tucson, the Rocky Mountain Forest and Range Experiment Station (USDA in Flagstaff) and the Coronado Resource Conservation and Development office (USDA in Willcox).

E. Statement of Project Years of Benefit

Benefits are expected from this project for 20+ years

III. PROJECT LOCATION (Maps are inserted behind this page)

A. **Watershed Map-**

B. **Project Boundary and Practice site Location Maps**

IV. PROJECT SCHEMATIC (Location and standards are included as inserts behind this page)

A. **Fence Location**

B. **Fence standards**

Project Location & Environmental Contaminant Information
FY 2009

Project Location Information

1. County: Santa Cruz	2. Section: see maps	3. Township: _____	4. Range: _____

5. Watershed: San Pedro River

6. Name of USGS Topographic Map where project area is located: O'Donnell Canyon, Mustang Mountains, Pyeatt Ranch, Huachuca City NOTE: The Babocomari is a Land Grant and was not surveyed, locations are given as GPS coordinates

7. State Legislative District: 8

(Information available at http://156.42.40.10/mapping/default2.asp?tname=Interim.2004.Legislative.Map)

8. Land ownership of project area: Private

9. Current land use of project area: Livestock grazing and wildlife

10. Size of project area (in acres): 1,560 AC

11. Stream Name: Babocomari River, O'Donnell Creek & Turkey Creek

12. Length of stream through project area: Babocomari 6 mi, O'Donnell & Turkey Creek 3.5 mi

13. Miles of stream benefited: 9.5 miles

14. Acres of riparian habitat: 440 acres will be:

- ☐ Enhanced
- ☒ Maintained
- ☐ Restored
- ☐ Created

15. Provide directions to the project site from the nearest city or town. List any special access requirements:

At Elgin, take Elgin Canelo Road south, turn left on to Babocomari Road, turn slight right, (Babocomari Ranch will be on the left, stay straight to go onto Research Ranch Road, (1.0 miles to Appleton Whittell Research Ranch.

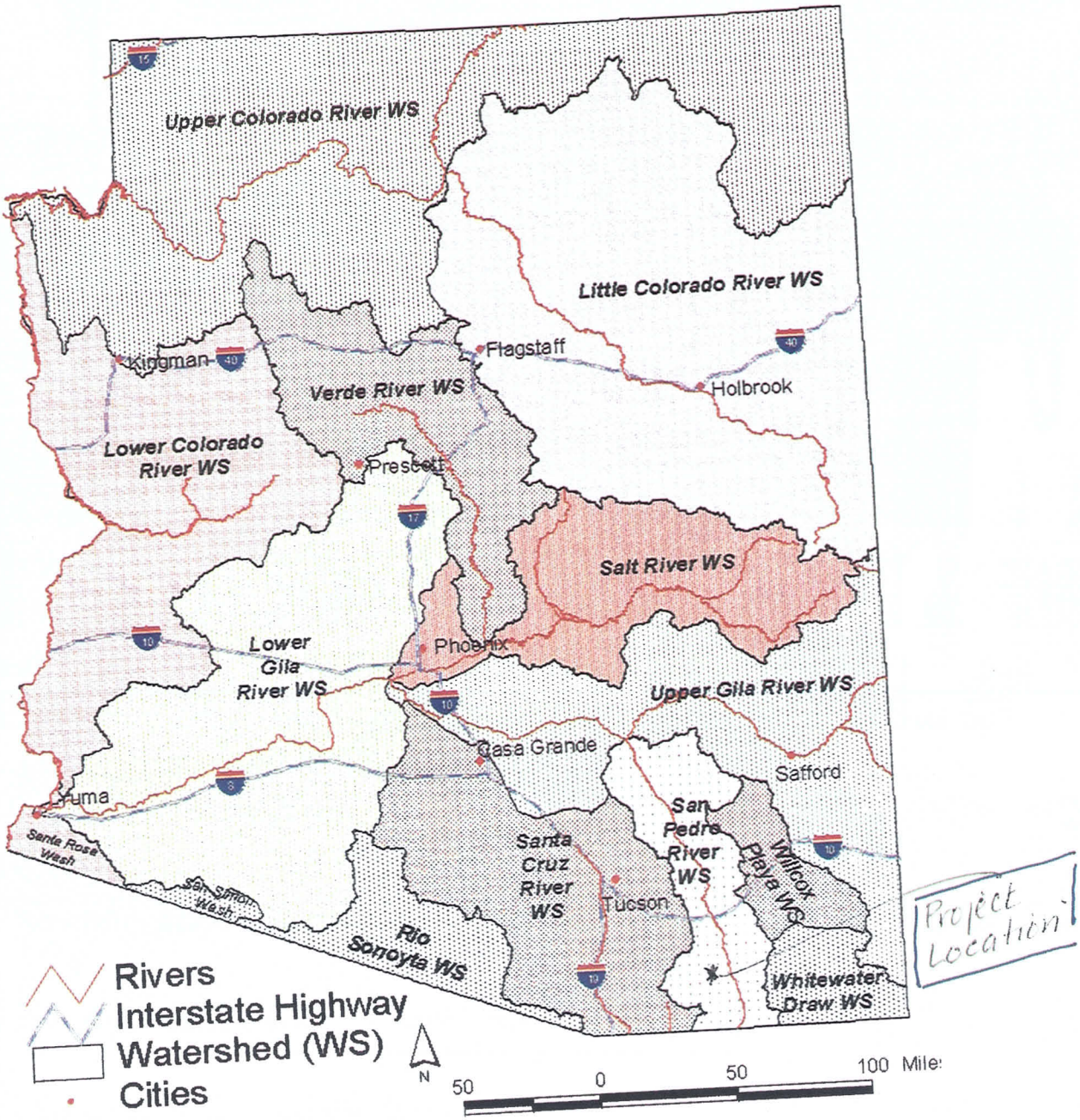
Environmental Contaminant Location Information

1. Does your project site contain known environmental contaminants? ☐**YES** ☒**NO** If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants:
   -

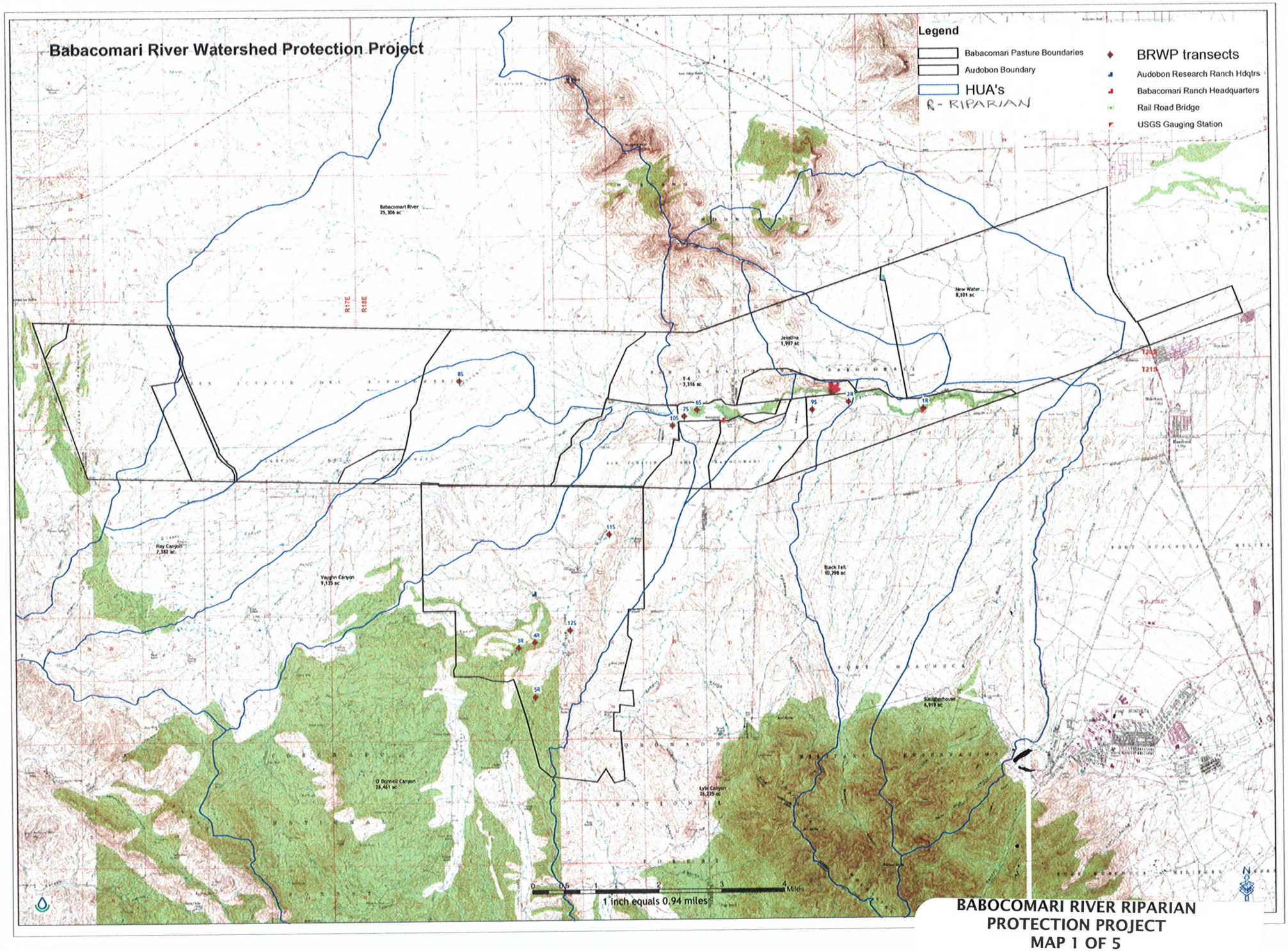
2. Are there known environmental contaminants in the project vicinity? ☐**YES** ☒**NO** If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants:
   -

3. Are you asking for Arizona Water Protection Fund monies to identify whether or not environmental contaminants are present? ☐**YES** ☒**NO**

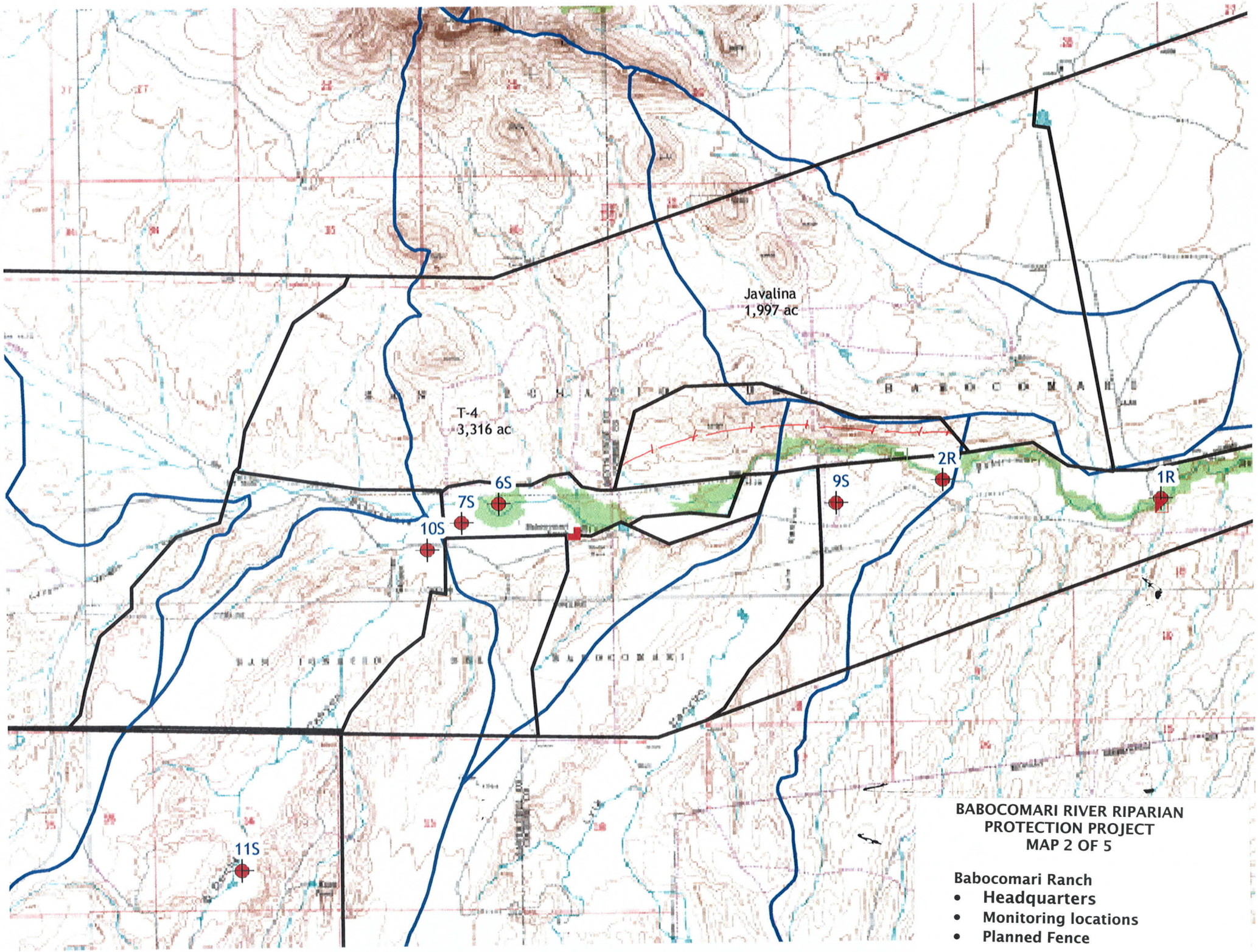
Arizona Watershed Map
FY 2009

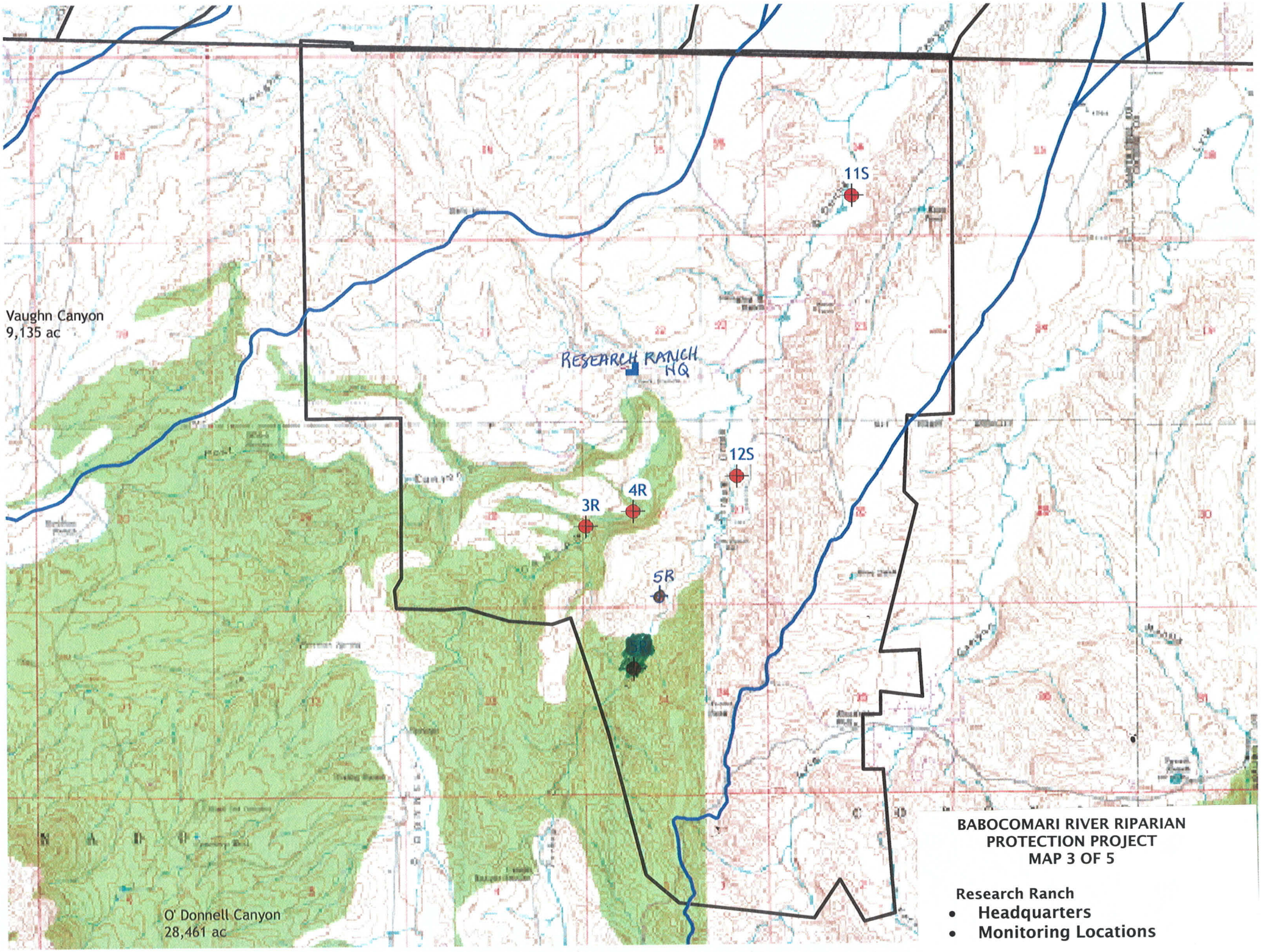


Title of Project: Capital Babocomari River Riparian Protection Project



BABOCOMARI RIVER RIPARIAN
PROTECTION PROJECT
MAP 1 OF 5
ENTIRE PROJECT AREA


Javalina
1,997 ac
T-4
3,316 ac
6S
7S
10S
9S
2R
1R
11S
BABOCOMARI RIVER RIPARIAN
PROTECTION PROJECT
MAP 2 OF 5
Babocomari Ranch
• Headquarters
• Monitoring locations
• Planned Fence



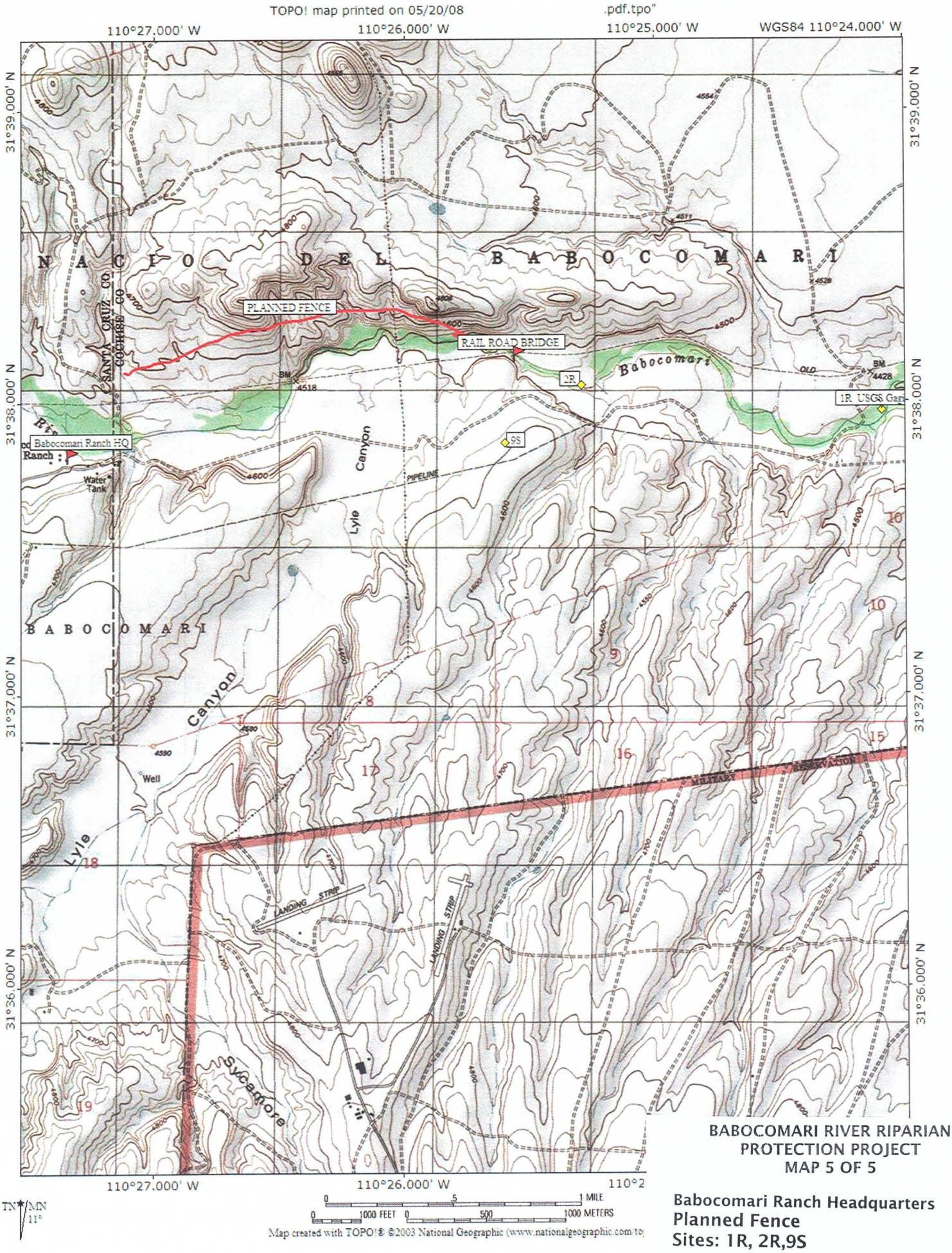
BABOCOMARI RIVER RIPARIAN PROTECTION PROJECT
MAP 3 OF 5

Research Ranch

- **Headquarters**
- **Monitoring Locations**

BABOCOMARI RIVER RIPARIAN PROTECTION PROJECT
MAP 4 OF 5

Babocomari Ranch Headquarters
Research Ranch Headquarters
Turkey Creek
O'Donnell Canyon
Sites: 5R,3R,4R,6S,7S,10S,11S.12S



BABOCOMARI RIVER RIPARIAN PROTECTION PROJECT
MAP 5 OF 5

Babocomari Ranch Headquarters
Planned Fence
Sites: 1R, 2R,9S

Babocomari Ranch and Audubon Research Ranch Riparian Transect and New Fencing Locations

Babocomari Ranch

Station # 1 – Babocomari creek at USGS stream gauge station

N 31 degrees, 37' 56.4" and W 110 degrees, 24' 2.9"

Station # 2 – Babocomari creek above Railroad bridge

N 31 degrees, 38' 10.8" and W 110 degrees, 25' 34"

Station # 6 – Babocomari cienega, east side

N 31 degrees, 37' 58.8" and W 110 degrees, 27' 28.5"

Station # 7 – Babocomari cienega, west side

N 31 degrees, 37' 51.3" and W 110 degrees, 27' 59.7"

Station # 8 – Hay canyon sacaton

N 31 degrees, 37' 16.6" and W 110 degrees, 31' 18.4"

Station # 9 – Lyle canyon sacaton

N 31 degrees, 37' 51.2" and W 110 degrees, 26' 7"

Station # 10 – O'Donnell canyon sacaton

N 31 degrees, 37' 45" and W 110 degrees, 28' 8.5"

Audubon Research Ranch

Station # 11 – O'Donnell canyon sacaton

N 31 degrees, 36' 30.7" and W 110 degrees, 29' 0"

Station # 12 – Turkey creek sacaton

N 31 degrees, 34' 57.5" and W 110 degrees, 29' 48.6"

Station # 3 – O'Donnell creek perennial reach

N 31 degrees, 34' 26.6" and W 110 degrees, 31' 4.7"

Station # 4 – O'Donnell creek ephemeral reach

N 31 degrees, 34' 50.4" and W 110 degrees, 30' 21.6"

Station # 5 – Turkey creek ephemeral reach

N 31 degrees, 34' 21.1" and W 110 degrees, 30' 14.4"

Babocomari Ranch – new fence location

East side (ties into existing fence at Railroad bridge and the River pasture)

N 31 degrees, 38' 10" and W 110 degrees, 25' 33.9"

Middle section (in the foothills north of Babocomari creek)

N 31 degrees, 38' 33" and W 110 degrees, 26' 34"

West end (ties into existing fence around the Cienega pasture)

N 31 degrees, 37' 58.9" and W 110 degrees, 27' 27.5"

BABOCOMARI RIVER RIPARIAN PROTECTION PROJECT

Type of transect*	Type of community	Station No.	Area	BR	RR	Annual Schedule	Legal Descriptions
Vegetation (pace frequency*)	Grass/grass-like	6,7	Cienega	2		1X, fall	T20S R18E
		8	Hay Canyon	1		1X, fall	T20S R18E
		9	Lyle Canyon	1		1X, fall	T20S R18E
		10,11	O'Donnell Canyon	1	1	1X, fall	(11) NE¼ SW¼ SEC 14 T21S R18E
		12	Turkey Canyon		1	1X, fall	SE¼ NE¼ SEC 27 T21S R18E
Vegetation (green-line & 50-tree**)	Riparian woodland	1	Babacomari River, USGS Gaging Station (perennial, receives sediment)	3		2x, spring & fall	T20S R18E
		2	Babacomari River, upstream of Railroad Bridge (perennial, no sediment)	3		2x, spring & fall	T20S R18E
		3	O'Donnell above dams, perennial		3	2x, spring & fall	NW¼ SW¼ SEC 27 T21S R18E
		4	O'Donnell below dams, ephemeral		3	2x, spring & fall	SE¼ NW¼ SEC 27 T21S R18E
		5	Turkey		3	2x, spring & fall	SE¼ NW¼ SEC 34 T21S R18E
Geomorphic cross-section	Riparian woodland	1	USGS Gaging Station (perennial, receives sediment)	3		1x, spring	
		2	Upstream of Railroad Bridge (perennial, no sediment)	3		1x, spring	
		3	O'Donnell above dams, perennial		3	1x, spring	
		4	O'Donnell below dams, ephemeral		3	1x, spring	
		5	Turkey		3	2x, spring & fall	

*additional: Photographs, precipitation, ecological status (Interpreting Indicators for Rangeland Health)
**additional: Photographs, ecological status (Riparian Proper Functioning Condition)

USDA NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
ARIZONA

FENCE

(feet)
CODE 382

DEFINITION

A constructed barrier to animals or people.

PURPOSES

This practice may be applied as part of a conservation management system to facilitate the application of conservation practices by providing a means to control movement of animals and people.

CONDITIONS WHERE PRACTICE APPLIES

This practice may be applied on any area where livestock and/or wildlife control is needed, or where access to people is to be regulated. Fences are not needed where natural barriers will serve the purpose.

CRITERIA

General Criteria Applicable to All Purposes

Fencing materials, type and design of fence installed shall be of a high quality and durability. The type and design of fence installed will meet the management objectives and topographic challenges of the site. The completed job shall be workmanlike and present a good appearance. The installer and other persons will conduct all work in accordance with proper safety procedures.

Fences shall be positioned to facilitate management requirements. The fence design and installation shall follow all federal, state, and local laws and regulations, and where possible, to minimize the visual impacts of the fence.

Height size, spacing, and type of materials used will provide the desired control and management of animal and people of concern.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

Cultural Resources

If this practice involves soil disturbance, the area of potential effect for each undertaking must be investigated for cultural resources under section 106 of the National Historical Preservation Act of 1966, as amended, before soil disturbance occurs. See the NRCS Arizona Handbook of Cultural Resources Procedures (Applicability and Exceptions Section) for identification of practices that are exempt from, or that require cultural resources surveys.

Endangered Species

The NRCS technician shall determine if installation of this practice with any others proposed practice will affect any federal, tribal, or state listed Threatened or Endangered species or their habitat. NRCS's objective is to benefit these species or at least not have any adverse effect on a listed species. If the Environmental Evaluation indicates the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects.

Further assistance will be provided only if the landowner selects one of the alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the U.S. Fish and Wildlife Service. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Additional Criteria for Water Quality

All work shall be done in a manner that minimizes soil and vegetation disturbance and the movement of sediment and other pollutants into streams and water bodies. Vegetation clearance for construction of the fence shall not exceed 20 feet in width. Any engine oil, lubricants, or other chemical pollutants spilled during construction of the fence shall be safely collected and properly disposed of.

CONSIDERATIONS

Consider installing fences in locations that will facilitate maintenance avoiding irregular terrain and/or water crossings.

Consider wildlife movement needs when locating fences. Consider leaving gates open when pastures are not being in areas with large wildlife species.

Consider livestock management, handling, watering and feeding when locating fences.

Where applicable, clear right-of-ways will be established which will facilitate fence construction and maintenance.

Consider soil erosion potential when planning and constructing a fence on steep slopes.

Consider topography, soil properties, safety, and management of livestock, wildlife movement, location, and adequacy of water facilities, development of potential grazing systems, human access, landscape aesthetics, erosion problems, moisture conditions, flooding potential, stream crossings, and durability of materials.

Where applicable, cleared rights-of-way may be established which would facilitate fence construction and maintenance

Fences across gullies, canyons, or streams may require special bracing, designs or approaches.

Fence design and location should consider ease of access for construction, repair and maintenance.

PLANS AND SPECIFICATIONS

Plans and specifications for installing fences shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve all of its intended purposes.

OPERATION AND MAINTENANCE

Maintenance and repairs will be performed as needed to facilitate the intended operation of the installed fence. The expected life span of this practice is 20 years. With good maintenance, fences installed to these specifications can last 30 years or more.

If federal cost share funds are used to install this practice, the practice must be maintained and/or repaired to meet the intended use. The fence may not be modified from these specifications for the expected 20 year life span. If a conservation practice fails due to lack of operation and

maintenance by the participant, the participant will be responsible for repair and replacement costs or may be required to reimburse the government for payments received.

Typical maintenance required includes

- checking water gaps after storm events
- periodically checking fence wire tension
- repairing any wire breaks that may occur
- ensuring water does not pond around posts

If a conservation practice fails due to lack of operation and maintenance by the participant, the participant will be responsible for repair and replacement costs or may be required to reimburse the government for payments received.

Regular inspection of fences should be part of an ongoing maintenance program. Inspection of fences after storm events is necessary to insure the continued proper function of the fence. Maintenance and repairs will be performed in a timely manner as needed.

Retain and properly discard all broken fencing material and hardware. All necessary precautions should be taken to ensure the safety of construction and maintenance crews.

REFERENCES

There are many references available from Cooperative Extension, livestock associations and other groups that provide good information about fencing for specific kinds of animals and purposes.

USDA NATURAL RESOURCES CONSERVATION SERVICE
ARIZONA
CONSERVATION PRACTICE SPECIFICATION

FENCE

(Feet)

Permanent Power Fence

Practice Code 382B

Client	_____	Date	_____
NRCS Field Office	_____	Conservation District	_____
NRCS Assistance By	_____	Project Name	_____
Field / Pasture Numbers	_____	Purpose of Fence	_____
Planned Length (ft)	_____	Kind of Animal	_____

General Specifications

Any alterations or additions to this practice design must be approved by NRCS prior to modifying this specification.

Fences installed on state, federal, and tribal owned lands normally require permit or approval.

The NRCS assumes no responsibility for interference with private or public utilities.

State and federally protected plants, animals, cultural resources, and historically significant properties shall not be harmed or destroyed during the installation of this practice.

All work shall be done in a manner that minimizes soil and vegetation disturbance and the movement of sediment and other pollutants into streams and water bodies. Vegetation clearance shall not exceed 20 feet in width. Any engine oil, lubricants, or other chemical pollutants spilled during construction shall be safely collected and properly disposed of.

Old posts, wire, and other fence materials shall be completely removed from the site and properly disposed of.

Any existing structures, including the tie-in to other existing fences, used in constructing the new fence, must be approved by NRCS prior to construction. . The tie into existing fences, natural barriers, or other structure shall equal or exceed the quality of the fence constructed under this specification.

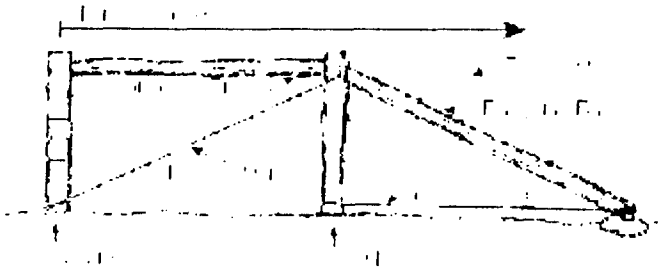
In areas where the animals to be contained will have little contact with the fence or animals to be contained will occur on both sides of the fence the fence will be constructed of 4 wires with the total height to the top wire not less than 40 inches.

In areas where the animals to be contained will have regular contact with the fence and animals to be contained will not occur on both sides of the fence the fence may be constructed of 3 wires with a total height of not less than 36 inches.

Fences constructed to contain cattle or sheep in short duration grazing systems may be constructed of 2 wires with the top wire not less than 26 inches high for sheep and 26 to 30 inches high for cattle.

Anchor and Brace Assemblies

Anchor and Brace Assembly Terms



Brace assemblies shall be installed at all angles, corners, gates, and ends of the fence, and at the base and summit of steep slopes as needed to properly stretch the fence wire.

Fences shall be constructed in straight sections. The distance between brace assemblies shall not exceed 4000 feet.

Double span brace assemblies are required for sandy or wet soil conditions and/or areas with heavy animal pressure.

End Brace Assemblies

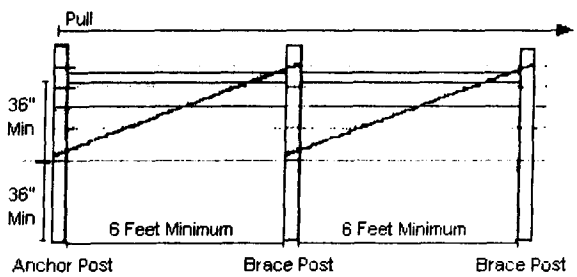
End brace assemblies shall be installed where there is only one direction of pull on the brace assembly, such as at gates or where the fence meets a natural barrier. Horizontal brace assemblies shall be used for all end bracing.

End bracing shall be installed on each side of drainages and stream channels where the fence may be damaged by trapped debris during runoff or flood events.

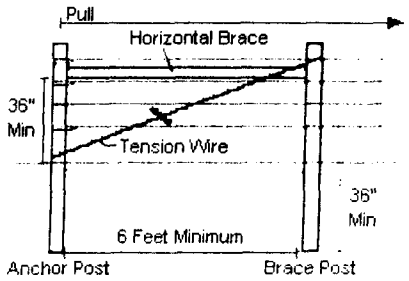
A diagonal brace may be used instead of an additional horizontal brace where double bracing is needed. The diagonal brace shall be doweled, or welded to the brace post at least 36 inches above the ground.

For welded steel diagonal braces, the ground end of the diagonal brace shall be set in concrete that is at least 24" in diameter, and 12" deep.

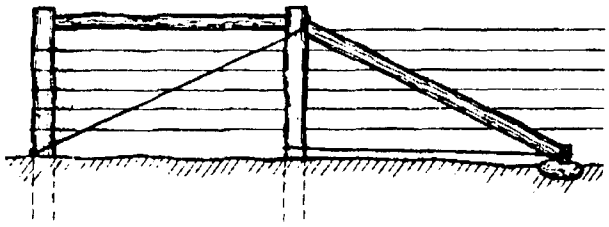
Double Span Horizontal Brace Assembly



Single Span Horizontal Brace Assembly

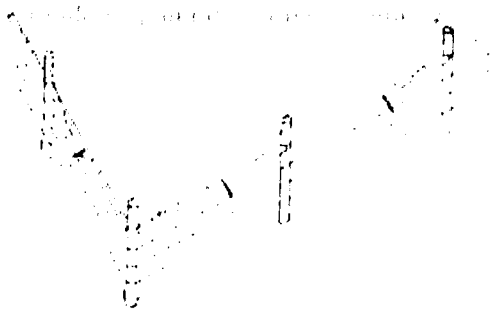


Horizontal And Diagonal Double Brace Assembly

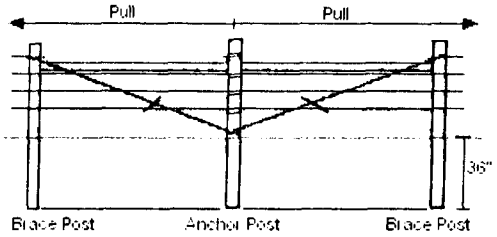


Line Brace Assemblies

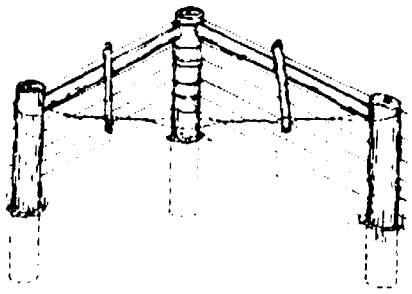
Line brace assemblies shall be installed where there are two directions of pull on the anchor post, such as at corners and in-line stretch posts. Line braces are constructed the same as end bracing, but with brace posts set in both direction of pull.



Single Span Assembly For Line Bracing



Single Span Assembly For Corners

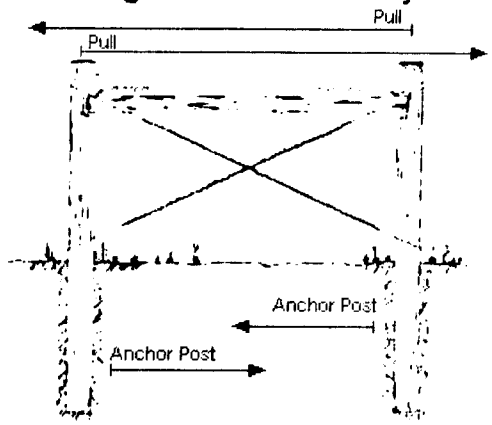


Single H Brace Assemblies

For straight, level sections of fence of 1/4 mile or less, where the distance and direction of pull are approximately equal on both sides of the line brace, a single H brace assembly can be used for

line bracing. In a single H brace assembly, each post serves as both an anchor post, and a brace post. They are constructed the same as a single span horizontal brace. Tension wires shall be installed in both directions, unless the assembly is welded.

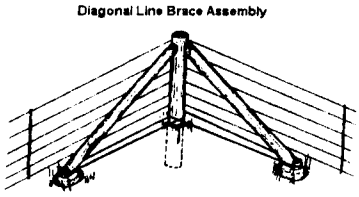
Single H Brace Assembly



Diagonal Brace Assemblies

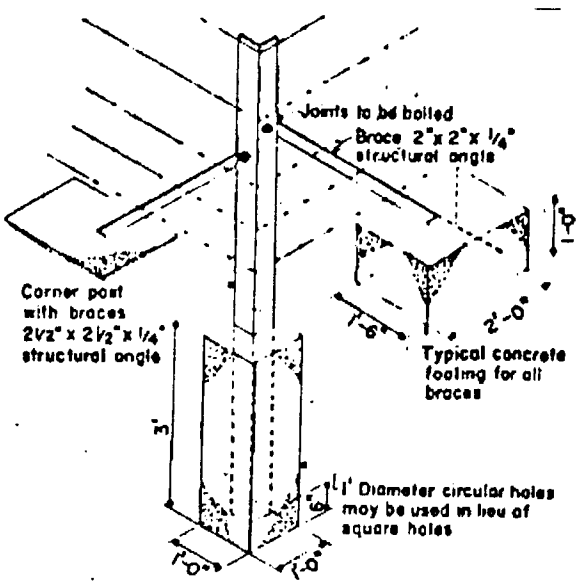
Diagonal and single diagonal brace assemblies may be used for bracing angles in the fence line between standard line braces or end braces. The fence wires shall not be tied off to a diagonal brace assembly.

Diagonal Line Brace Assembly



Steel and Concrete Brace Assemblies

Steel angle iron or steel pipe set in concrete may be used for end and line bracing. Steel and concrete brace assemblies shall be constructed as single or double span horizontal brace assemblies, or as a diagonal brace assembly.



TYPICAL CORNER POST INSTALLATION

Steel angle iron or steel pipe shall be galvnized coated or painted. If painted all rust or loose material shall be removed by wire brushing or other suitable method, treated with a rust inhibitor, primed with a metal primer paint, and then painted with two coats of high grade weather resistant epoxy or enamel paint.

Anchor and Brace Posts

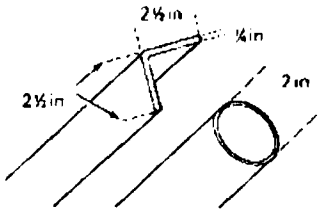
All anchor and brace posts shall be set in the ground at least 36 inches. Anchor and brace posts shall be long enough to extend at least 4 inches above the top wire of the fence.

Wooden Anchor and Brace Posts

The minimum top diameter for wooden anchor and brace posts shall be 6 inches. Wooden posts shall have a minimum life expectancy of 10 years. Untreated juniper, oak, mesquite, black locust, and redwood posts may be used. Pine or other softwood posts must be pressure treated. Railroad ties in good condition are suitable for use as anchor and brace posts.

Wooden anchor and brace posts shall be set into the ground a minimum of 36 inches. Posts greater than 6" in diameter shall be set in holes at least six (6) inches larger than the diameter of side dimensions of the posts. The hole shall be filled with dirt in 4 inch layers and tamped firm. The post shall be plumb. The top of the dirt fill shall be mounded above ground level such that water does not pond around the base of the post.

Steel Anchor and Brace Posts



Anchor and brace posts may be made from steel angle iron that is at least 2.5" x 2.5" x 0.25" x 6.5', weighing at least 4 pounds per foot of length. Angle iron anchor and brace posts shall be set in concrete as described below.

Anchor and brace posts may be made from new steel pipe that meets or exceeds the requirements for 2 inch nominal size standard steel pipe (ASTM A120 Schedule 40).

Used steel pipe may be used provided that it is approved prior to construction by NRCS as being of good quality, relatively free of pits and scaling with an expected lifespan of at least 10 years. Used steel pipe must be 2.5" or larger diameter for anchor and brace posts.

Steel pipe less than 6 inches in diameter must be set in concrete as described below. Steel pipe 6 inches in diameter or larger shall be set the same as wooden anchor and brace posts.

In areas with over 12 inches average annual precipitation, steel pipe posts shall be capped to prevent precipitation from entering the pipe.

Setting Steel Posts in Concrete

Steel pipe posts less than 6 inches in diameter, and angle iron posts shall be set in a hole at least 36 inches deep and 12 inches in diameter. The bottom of the steel post shall be placed on a rock. The hole shall be filled with concrete in such a way as to allow the concrete to flow around the base of the post. The top of the concrete shall be mounded above ground level and sloped away from the post to prevent water from ponding around the base of the post.

Horizontal and Diagonal Braces

Horizontal braces shall be at least 6 feet long and attached to the upper 1/4 of the anchor and brace posts. Wooden horizontal braces shall have a minimum diameter of 4 inches. Wooden horizontal and diagonal braces shall have a minimum life expectancy of 10 years. Untreated juniper, oak, mesquite, black locust, and redwood may be used for horizontal and diagonal braces.

Pine or other softwood posts must be pressure treated. Railroad ties in good condition are suitable for use as horizontal and diagonal braces.

Wooden diagonal braces shall be a minimum of 10 feet in length. Wooden diagonal braces will have the following minimum diameters:

Length	Min. Diameter
10' – 12'	4"
12' – 15'	5"
15' – 17'	6"
17' – 18'	7"
18 – 20'	8"

Dowels shall be used to attach wooden horizontal and diagonal braces to wooden anchor and brace posts. The dowels shall be at least 6 inches long, and extend at least 3 inches into each piece. The dowels shall be made from 3/8" or larger steel, or 1" or larger diameter hardwood. Steel rebar can be used.

Steel pipe used for horizontal or diagonal braces shall be new, 2 inch nominal size standard steel pipe (Schedule 40) or larger.

Used steel pipe 2.5" or greater in diameter may be used provided that it is approved prior to construction by NRCS as being of good quality, relatively free of pits and scaling with an expected lifespan of at least 10 years.

Steel pipe shall be notched at least 2 inches but not more than 3 inches into wood anchor and brace posts, or welded to steel anchor and brace posts.

Steel angle iron horizontal or diagonal braces shall be a minimum of 2.5" x 2.5" x 0.25" weighing at least 4 pounds per foot of length. Angle iron braces shall be notched into wooden anchor and brace post at least 2 inches but not more than 3 inches, or welded to steel anchor and brace posts.

Tension Wires for Wooden Brace Assemblies

Tension wires for all wooden brace assemblies shall be made from two complete loops of 9 gauge or heavier smooth galvanized wire.

The tension wire on horizontal brace assemblies shall be attached diagonally from approximately 4 inches above the horizontal brace on the brace posts, to just above ground level on the anchor post. The tension wires shall be twisted together until the brace assembly is rigid.

For wooden diagonal braces, the ground end of the diagonal brace shall be set on a flat rock or brick. The end of the diagonal brace must be free to move forward when the fence wire is stretched, and must not be blocked by a stake or post. The tension wire shall be wrapped from just above the ground on the brace post, to the ground end of the diagonal brace.

Line Posts and Stays

Line posts shall be set in a straight line between brace assemblies with not more than 12 inches of deviation.

Manufactured fiberglass posts will be of a composite of marble fiberglass and polymer resins that have been treated by thermosetting (heat treatment). "T" shaped posts will be a minimum of 1 x 1 inch cross section with notches. One inch fiberglass sucker rod (round) or the rectangular equivalent may be used.

Manufactured steel "T-posts" or "U-posts", with anchor plates, weighing not less than 1.25 pounds per foot of length can be used. In saline-sodic soils "T-posts" weighing not less than 1.33 pounds per foot of length shall be used. The posts shall be studded, embossed, notched, or punched for the attachment of wires. They shall be galvanized, painted, or enameled. "T-posts" or "U-posts shall be driven into the ground until the top of the anchor plate is below ground level. Steel "T" or "U" posts shall be long enough to be driven into the ground above the anchor plate, and extend not less than 2 inches, but not more than 4 inches above the top wire.

Insultimber or Australian ironwood posts of 2 inch or greater diameter may be used without insulators. Conventional wooden line posts may also be used. The minimum top diameter or width for wooden line posts shall be 3 inches. Wooden line post shall be set a minimum of 18 inches into the ground, or 24 inches in sandy or wet soils. Wooden line posts shall have a minimum life expectancy of 10 years. Untreated juniper, oak, mesquite, black locust, and redwood posts may be used. Pine or other softwood posts must be treated with a preservative.

Line posts may be made from steel pipe that meets or exceeds the requirements for 2 inch nominal size standard steel pipe (Schedule 40). Used steel pipe may be used provided that it is approved by NRCS prior to construction as being of good quality and relatively free of pits and scaling. Steel pipe line post shall be set a minimum of 18 inches into the ground, or 24 inches in sandy or wet soils.

On two wire electric fences steel reinforcement bars may be used for line posts. The reinforcement bar must be at least 5/8 inch or #5 bar, set in the ground at least 18 inches and extend above the top wire 4 to 6 inches.

Stays shall be made of fiberglass.

Fence Line Sections

The maximum line post spacing for standard fence line sections is as follows:

- 75 feet with no stays
- 100 feet with stays on 50 foot center

Fence Wire

All wire will be new, smooth, high tensile 12 ½ gauge or greater with a tensile strength of 110,000 psi or greater with type 3 galvanization and certified as meeting ASTM A116. ***Barbed wire will not be used in a permanent power fence.***

It is recommended that every other wire be a ground wire to obtain maximum effectiveness of the electrical pulse. Fences constructed in sand, loamy sand, or shallow rocky soil will not use an all positive wire system.

Wire tension shall be approximately 200 pounds per wire. In-line or end-post ratchet strainer devices will be installed to maintain correct wire tension.

Galvanized wire with two layers of insulation will be used where underground burial or overhead transmission is required.

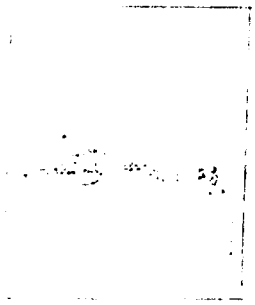
Wire Spacing

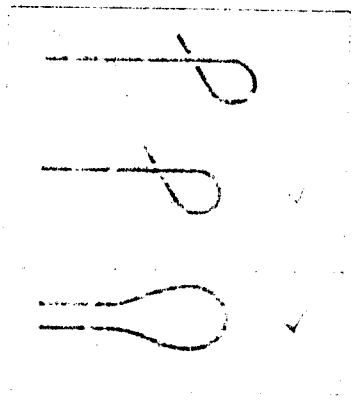
Wires will be spaced such that the head of the animal to be contained may not penetrate the fence without coming into contact with two wires.

Wire Attachment

Energized fence wires shall be attached to the anchor post on each end of a fence section through an insulator. Ground wires may be

attached to the anchor post by double wrapping the wire around the anchor post and tying it off.

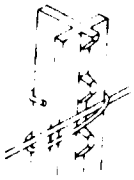




Energized wires shall be attached to all fiberglass posts using tie wires, or manufactured wire fasteners of good quality. Energized wires may be attached to Insultimber, or Australian ironwood line posts using staples. Energized wires shall be attached to all steel or wood post through an insulator made of black polypropylene or polyethylene plastic or porcelain ceramic. Ground wires may be attached directly to wooden or steel posts with staples, tie wire or manufactured wire fasteners of good quality.

Tie Wires and Fasteners

Manufactured wire fasteners of good quality will be of good quality and zinc-coated in accordance with ASTM A153. Tie wires shall be 16 gauge or heavier galvanized steel.



Insulators

Insulators will be made of black polypropylene or polyethylene plastic or porcelain ceramic.

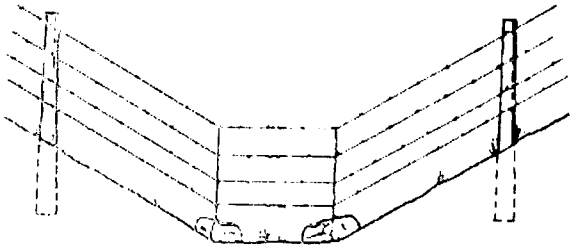
Staples

Staples shall be 9 gauge galvanized or polished hard wire, 1.75 inches long for softwood, and 1 inch long for hardwood posts. Staples shall be driven diagonally to the grain at a slightly downward angle. The staples on line posts shall be driven such that they do not bind or bend the fence wire, allowing the fence wire to contract and expand.

Wire Splicing

Join wire using a figure eight knot, reef knot or joint clamp.

Fence Anchors

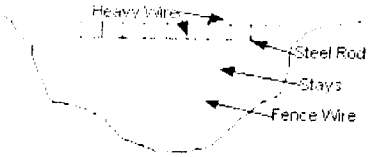


Fence anchors shall be installed when the bottom wire is more than 6 inches above the design height above the ground.

Anchor weights for holding down fence wires crossing drainages or depressions shall weigh at least 50 pounds or be equivalent to a 1 cubic foot concrete block. They shall be attached with 9 gauge or heavier smooth wire to non-energized wire(s).

Water Gaps

Swinging Water Gap



Where the fence crosses a drainage more than 40 feet wide, end bracing shall be installed on each side of the drainage. Water gap fence

section materials shall equal the quality of the adjoining fence. They shall be assembled as a separate unit to protect the main fence from damage. The ends of the water gap fence wires shall be attached to a separate steel or wooden line post attached to the end brace using lightweight wire or staples that will allow the water gap to break away from the end braces in a flood event without damaging the end braces and adjacent fence sections.

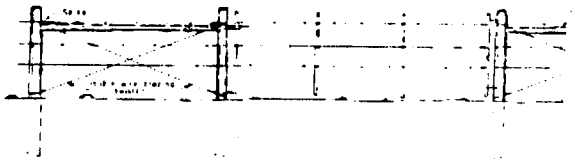
For deep narrow drainages, a separate fence section can be installed below the main fence. This separate fence section shall not be attached to the main fence.

Gates and Cattle Guards

Gates shall equal or exceed the quality of the adjoining fence. They may be made of wood, aluminum, steel, or wire. "Lift" or "Australian" gates are acceptable.

If a heavy gate is attached to the anchor post side of the end brace assembly, an additional tension wire running in the opposite direction, from 4 inches above the horizontal brace on the anchor post to the bottom of the brace post, shall be installed. This tension wire should only be tightened enough to offset the weight of the gate.

Wire gates shall be constructed with equal or better quality wire and posts as used in the fence. Wire gates across roads shall have stays at least every 3 feet to ensure they are visible to vehicles. They shall be secured to the end brace assemblies with smooth 9 gauge galvanized wire, or fence wire.



Any commercially available cattle guard approved by the manufacturer for the intended use in the fence may be used.

Energizers

The energizer must be high voltage/low impedance short pulse producing at least 4000 volts output with all livestock containment fences charged when under maximum anticipated load. It is recommended at least one digital read out voltmeter accompany the energizer.

For 120 or 240 volt energizers a voltage spike protector will be installed.

Grounding

All power fences will be grounded. The energizer ground wire will be connected to at least 18 linear feet of galvanized pipe ¾ inch diameter or larger or solid copper rod ½ inch diameter or larger, through a gallery of 3 rods driven into the ground at least 6 feet. Where soil depth prevents penetrating at least 6 feet into the soil the number of rods will be increased to obtain at least 18 linear feet of rod in contact with soil.

Fence ground wires will be connected to a separate ground utilizing galvanized pipe or copper rod as discussed above. This ground may be located anywhere adequate depth of soil penetration can be obtained. A new ground will be established whenever the ground is broken, such as at gates. Install one additional ground as described above for each one mile of fence.

Safety Precautions

Do not use barbed wire on Power Fences

Do not use more than one energizer to electrify any one fence line at any one time

Avoid any power fence passing under or parallel to power lines

Keep electrified wires away from radio aerials

Operation and Maintenance

The expected life span of this practice is 10 years. With good maintenance, fences installed to these specifications can last 20 years or more.

Typical maintenance required includes

- ensuring notification of electric fence is adequate and visible (recommended warning sign every 65 feet)
- clearing away any brush or debris that may cause shorting of the fence
- checking water gaps after storm events
- periodically checking fence wire tension
- repairing any wire breaks that may occur
- ensuring water does not pond around posts
- turning energizer off in fire prone areas during high risk days

I have reviewed the plans and specifications. I accept and approve them for the installation of this project.

Landowner or Operator Date

United States Department of Agriculture
Natural Resources Conservation Service
Arizona

Operation and Maintenance Plan For Your Fencing

Cooperator _____ Date _____

Address _____

Location: Section _____ Twn _____ Range _____ Field No. _____

NRCS Field Office _____ County _____

This conservation practice is an asset to your farm or ranch. This practice will need periodic operation and maintenance to maintain satisfactory performance. The life of this practice or system is at least 10 years. The life of this practice can be assured or extended by thorough and timely operation and maintenance. Here are some recommendations to help you develop a good operation and maintenance program.

GENERAL RECOMMENDATIONS

- ☐ Remove all foreign debris that hinders fence operation.
- ☐ Immediately repair any damage from vandalism, vehicles, fire, or livestock.
- ☐ Replace weathered or displaced fencing and maintain in good condition.
- ☐ Maintain gates used for control of livestock and vehicular travel.
- ☐ For power fences, maintain ground wires, lightning arresters, switches, and weather resistant cases for the energizers.
- ☐ For power fences; use volt meters to monitor voltage on line. Do not bypass safety pace fuses.

Contact your local Natural Resources Conservation Service for any additional technical assistance that you might need for implementation of this operation and maintenance plan for your structure.

USDA NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION
ARIZONA

USE EXCLUSION

(acre)
CODE NO. 472

1. SCOPE

The work shall consist of excluding animals, people or vehicles from an area, including furnishing necessary equipment, materials and labor.

2. GENERAL REQUIREMENTS

Procedures, technical details and other information listed below provide additional guidance for carrying out selected components of the named practice. This material supplements the requirements and considerations listed in the conservation standard.

Installation shall be in accord with these specifications and special requirements. For federally funded practices, no changes are to be made to these specifications, the design or drawings without prior NRCS approval.

The completed jog shall be workmanlike and present a good appearance. The job site shall have a neat appearance after completion.

It shall be the responsibility of the owner to obtain all necessary permits and/or rights, and to comply with all regulations and laws pertaining to this installation.

NRCS assumes no responsibility for interference with private or public utilities or facilities.

On Federal, State and Tribal lands, the landowner/lessee must have clearances and approvals or permits from the responsible permitting agency prior to any construction.

For Federally funded practices, the area of potential effect for each undertaking must be investigated for cultural resources under Section 106 of the National Historic Preservation Act of 1966, as amended, before soil disturbance occurs.

For Federally funded practices, NRCS must determine if installation of this practice will affect any federal, tribal, or state listed threatened or endangered species or their habitat prior to application or construction. If this action may affect a listed species or result in modification of a critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments to avoid adverse effects. Further assistance will be provided only if the land user selects one of the alternatives, or at the request of the landowner, NRCS may initiate consultation with US Fish and Wildlife Service. Any special requirements for endangered species are shown under special requirements.

For Federally funded practices, if during any installation, cultural resources, historical resources, threatened/endangered species are found, the landowner/lessee agrees to stop all work and immediately notify NRCS.

The owner, operator, contractor or other persons will conduct all work and operations according to proper safety codes with due regard to the safety of all persons and property.

Installation shall be done in a manner that minimizes erosion and air and water pollution to within legal limits.

Waste materials shall be burned, buried, or removed from the site as required by local laws and regulations.

Chemical pollutants such as oil, transmission fluid, lubricant and grease spills shall be cleaned up, disposed of, and removed from the site according to Federal, State, Tribal and Local government regulations. The contractor shall be responsible for preventing his operation from contaminating open and ground water sources.

A. Barriers

Barriers must be strong enough to prevent use by targeted vehicles, animals or people. Barrier life expectancy must be adequate for the intended purpose.

B. Vehicle

Barriers to protect areas from vehicles need to be large and heavy to prevent being moved. Boulders, multiple large mounds of soil, logs, or any combination, can be used. If lumber is used, it should be treated with a preservative to minimize rot damage or termite infestation.

C. Animal

Barriers to protect areas from animals, both domestic and wild, need to be of sufficient size and strength to be able to with stand animal pressure.

Barrier life expectancy must be adequate for the intended purpose. If fences are to be built, fencing specification, code 382, will be followed. Domestic livestock will be excluded from wildlife areas during critical periods identified for the wildlife species of concern. Domestic livestock may be excluded entirely except for periods of flash grazing if needed to maintain health of the ecosystem.

D. Human

Barriers to deter human use can be boulders, mounds of soil, vegetation, logs, fences, gates or signs. All areas to be protected will be posted.

Timing and exclusion periods must be described to accomplish intended purposes. For maximum plant growth, use should be excluded when plant growth starts, to the first killing frost. For extremely sensitive areas, or to protect endangered/sensitive plant and animal species, exclude use year round.

E. Windbreak and Forest Reproduction

1. Windbreaks/Shelterbelt Establishment (380) must be protected from livestock browsing until the trees have reached a height beyond the reach of grazing animals.
2. Pine, juniper and Arizona cypress plantations must be protected from grazing until the trees are at least 3 feet tall.
3. Christmas tree plantations of all species must be protected from livestock until they are 5 to 6 feet tall.

F. Critical Areas

Livestock will be excluded from critically eroded areas until grass or other protective cover is well established. Periodic grazing of the area may be desirable, but this grazing should not exceed Prescribed Grazing (528a) specifications.

G. Recreation Areas

Recreation areas that receive continuous recreational use shall have livestock excluded. Recreational areas having only seasonal use shall have livestock excluded during the season of recreation use. Grazing by domestic livestock during the off-season will be allowed under the following conditions:

1. Grazing will not exceed Prescribed Grazing specifications (528a).
2. Plants set out for beautification of the area will be protected from grazing or browsing.
3. Recreational facilities and scenic areas will be adequately protected.

H. High esthetic value areas

High esthetic value areas or areas used for other special uses shall have livestock grazing excluded when it would be detrimental to the area.

I. Method of Exclusion

1. Natural barriers.
2. Vegetative barriers.
3. Mechanical barriers. (See specifications for Fencing (382) for specific application.)

Barriers must be strong enough to prevent use by targeted vehicles, animals or people. Barrier life expectancy must be adequate for the intended purpose.

J. Timing

Timing and exclusion periods must be described to accomplish intended purposes. For maximum plant growth, use should be excluded when plant growth starts, to the first killing frost. For extremely sensitive areas, or to protect endangered/sensitive plant and animal species, exclude use year round.

K. Considerations

All areas should consider existing or potential liability to the planning agency or the land user based on safety, health and public relations.

Barriers may consist of both natural and artificial structures such as logs, vegetation, earth fill, boulders, fences, gates or signs.

F. Plans and Specifications

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

3. SPECIAL REQUIREMENTS

Measures and construction shall be incorporated as needed and practical to enhance wildlife values. Special attention shall be given to protecting visual resources and maintaining key shade, food, and den trees.

Installation shall be in accordance with the following drawings, specifications and special requirements. NO CHANGES ARE TO BE MADE IN THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF NRCS.

Other Requirements

- ☐ Potential liability assessed
- ☐ Impact of the barrier on wildlife health and animal movement considered and description of any actions needed to minimize negative impacts attached.
- ☐ Barrier does not restrict public safety activities such as fire control.
- ☐ Adequate marking to safeguard human safety is provided.
- ☐ Signage meets local/state law and regulations.

4. REQUIRED ATTACHMENTS

☐ Plan Map showing location

☐ Designs showing alignment, width, side slopes, drainage, erosion control, surfacing, traffic safety, and construction operations.

Drawings, No.

5. OTHER ATTACHMENTS

☐ Associated Practice Specifications _____

☐ Water Quality Considerations

☐ Other _____

6. OPERATION AND MAINTENANCE

Barriers will be periodically inspected and remedial repairs will be performed as needed.

This conservation practice is an asset to your farm or ranch. This practice will need periodic operation and maintenance to maintain satisfactory performance. The life of this practice or system is at least 10 years. The life of this practice can be assured or extended by thorough and timely operation and maintenance. Here are some recommendations to help you develop a good operation and maintenance program.

GENERAL RECOMMENDATIONS

☐ If fences are installed, they shall be maintained to provide warning and/or prevent unauthorized human or livestock entry.

☐ Immediately repair any damage from vandalism.

Specific Recommendations For Your Installation

_____

V. SCOPE OF WORK

This project will implement a three-step process to conserve significant riparian assets on two adjoining ranches in southeast Arizona, the Babocomari Cattle Ranch and the adjoining Appleton-Whittell Research Ranch of the National Audubon Society. The water, plant and animal resources of this system are diverse and unique in the fact that they are in a rarely found intact condition with good environmental and hydrologic conditions.

In the first step, 2.2 miles of livestock fence will be installed to separate a stretch of perennial stream on the Babocomari River from an upland pasture. The upland pasture has adequate water but if livestock go down into the riparian area, they tend to stay rather than travel back to the higher more rugged terrain. This fence will remove cattle access to the riparian area from that pasture.

Step two will establish two permanent vegetative monitoring sites in riparian areas along the Babocomari River (stations 1 and 2), two on riparian areas of O'Donnell creek (stations 3 and 4) and one on in the riparian area of Turkey creek (station 5), both significant tributaries of the Babocomari. Three monitoring sites will be installed in the sacaton and grasslike plant communities on the floodplains of O'Donnell, Hay and Lyle Canyons (stations 8, 9 and 10 respectively) and two on the Babocomari Cienega (stations 6 and 7), all on the Babocomari ranch. Two transects will be maintained on the Research Ranch in similar plant communities on the floodplains of O'Donnell (station 11) and Turkey Canyons (station 12). These will be used to gather information on hydrologic and vegetative function. Monitoring will be done to document present day, baseline conditions and establish trends.

In step three, data will be gathered and assembled into resource reports that can be used by the cooperating ranches to make management decisions to maintain and / or improve vegetative conditions on the Babocomari River, the Babocomari Cienega and sacaton floodplains along Lyle, O'Donnell and Turkey Creeks. Information gathered in the project as well as methods used and benefits of the project will be presented to a wide audience through multiple avenues outlined in an outreach plan. Both properties protect streams and floodplains that will be vital to the health of the Babocomari River system far into the future. With an estimated contribution of 6000 ac. ft. of water annually to the San Pedro River, the Babocomari River and its upper watershed is a valuable Arizona natural resource, worth preserving and protecting for generations to come. This project will serve as a model for protection of desert rivers in southwest North America.

Monitoring and a majority of the outreach tasks will be subcontracted to Robinett Rangeland Resources LLC, with Dan Robinett and Linda Kennedy the primary investigators.

DESCRIPTION OF TASKS:

Task #1: Permits, clearances, authorizations and agreements

The Applicant will obtain all permits, clearances, authorizations and agreements necessary to conduct work described in this Scope of Work. The Applicant will also include written permission from each

landowner and/or land manager to access all sites for monitoring purposes and for the duration of time that is needed for data collection.

Task#1 deliverables shall include, but shall not be limited to:

- Access agreements for each research and reference site.
- Sub-contractor agreements for project monitoring and/or analysis and outreach.
- Agreements necessary to obtain and use previously collected data for analyses, if necessary.
- SHPO- State Historic Preservation Office clearance

Task Purpose: To comply with all local, state, and federal permit requirements, and

environmental laws and obtain legal access to the project area(s).

Deliverable description: Copies of all necessary permits, authorization, clearances, and

environmental laws and demonstration of legal access to the project area.

Deliverable due date: Prior to initiation of field data collection

Reimbursable cost: $ 0.00

Task #2: Develop Project Work Plans

The Applicant shall submit the following detailed plans:

a) **Fencing Plan**-designed to Natural Resources Conservation Service standards and specifications and an outline for installation and maintenance of the practice.

b) **Outreach Plan**-that will outline the target audiences, methods to be used with each and materials that will be developed.

c) **Monitoring Plan** -a detailed description of the field sampling methodology for the following: (1) sacaton bottom, streamside and stream herbaceous vegetation, (2) riparian vegetation patch types, (3) woody vegetation structure, and (4) channel and floodplain geomorphology (5) rainfall

The monitoring site locations shall be noted on a map, identifying the current landowner and/or land manager. The sampling protocol shall include parameters to be measured, methodologies, frequency and timing of measurements, format for data collection including sample data sheets. The Applicant will describe the baseline data and data sources that will be obtained for review and final analyses, including but not limited to vegetation, geomorphology, and hydrology. In addition, the monitoring plan will include how data will be summarized and analyzed and how it will be compared to other available data and how patterns of change in the vegetation-hydrology will be evaluated.

Task Purpose: To develop project work plans to describe the methodologies of project implementation and analyses that will be used to evaluate the measurable parameters that can be used for management decisions.

Deliverable description: Project Work Plans

Deliverable due date: Prior to initiation of field data collection

Reimbursable cost: $ 2,730.00

Task #3: Implementation: Fencing

The Babocomari Ranch will construct 2 miles of fence at Project Site A to divide an upland pasture from the adjacent riparian area and Babocomari River. Construction will be done in accordance with NRCS fencing design submitted with the Fencing Plan.

Task Purpose: To control access to the Babocomari River by livestock.

Deliverable description: Invoices, photos of fence (before, during and after construction)

Deliverable due date: November 15, 2009

Reimbursable cost: $ 14,700.00

Task #4: Fieldwork Implementation: Establishment of Vegetation and Geomorphic Monitoring Sites

To monitor grass and grass-like communities in the area, five pace-frequency transects will be established on the Babocomari Ranch, and one each on O'Donnell, Lyle and Hay Canyons. Two transects will be located on the Research Ranch on the O'Donnell and Turkey Canyon floodplains.

Riparian woodland areas will be monitored through the establishment of vegetative transects and geomorphic cross sections. Two clusters of three transects each will be installed in the under-story of the riparian area along the Babocomari River. One site will be at the USGS Stream Gauging Station at the same site as an existing pace-frequency transect installed in 1995 to monitor stream terrace vegetation. The other location will be just one mile upstream of the Railroad Bridge and one mile below the ranch headquarters. Two clusters of transects of three transects each will be installed in the under-story of the riparian area along O'Donnell creek and one cluster on Turkey creek on the Audubon Research ranch.

Task Purpose: To establish sites that will be used for the monitoring and collection of information on the vegetation structure and composition, and geomorphology in response to management and climatic influences.

Deliverable description: Map and photos of monitoring site locations.

Deliverable due date: December 15, 2009

Reimbursable cost: $ 18,690.00

Task #5: Fieldwork Implementation: Vegetation and Geomorphic Monitoring

Data will be collected **annually** at each of the monitoring sites for the duration of the five year project. All monitoring will be conducted in accordance with a monitoring plan approved under Task #2.

Monitoring and data collection at each grassland site will include (1) monitoring of grass and grass-like communities using pace frequency transects (2) photos (3) Rainfall data collection (4) ecological status analysis.

Riparian woodland monitoring will include the following data to be collected at each site:

(1) streamside and half submerged herbaceous vegetation, (2) tree transect –over story riparian tree species measuring diameter at root collar, height, spacing and species composition

and (3) geomorphology using survey cross sections of the river channel and floodplain to monitor erosion and sedimentation of the river channel and stream terraces. (4) Photos at each site (5) Analysis of ecological status

Task Purpose: To collect information on the vegetation structure and composition and channel dynamics on key riparian habitat sites to document short- and long-term indicators of change.

Deliverable description: Description and documentation of fieldwork to be provided in Progress Report

Deliverable due date: Annually beginning December 30, 2009

Reimbursable cost: $ 20,160.00

Task #6: Data Entry

All data will be recorded and entered onto data sheets and compiled into Microsoft Excel spreadsheets.

Task Purpose: To allow for data analyses to be completed from the fieldwork data collection sheets associated with Task #5.

Deliverable description: Data sheets and excel spreadsheets

Deliverable due date: December 31, 2009 & 2010,2011, 2012, 2013

Reimbursable cost: $ 10,500.00

Task #7: Implementation of Outreach Plan

The Applicant and partners will implement one outreach activity each year as outline in approved outreach plan (task #2) to highlight the project and share information with the interested public. Outreach activities will include but shall not be limited to: workshops, field days, brochures, fact sheets, news articles, presentations to professional associations and landholder and watershed groups.

Task Purpose: To educate landholders, agency personnel and the public on the impacts and influences on riparian areas and provide evaluation tools for protection and preservation of these areas.

Deliverable description: Summary report of dates, locations and attendance at each activity/event and copies of all materials developed.

Deliverable due date: December 31, 2009, 2010, 2011, 2012, 2013

Reimbursable cost: $ 20,475.00

Task #8: Progress Report

Semi annual written reports will be submitted on the activities implemented under all tasks #1-7. A detailed progress report shall include a narrative of all work completed at each monitoring site, photos and analysis of data and a summary of outreach activities for the reporting period.

Task Purpose: To report on the progress of practice implementation, fieldwork implementation for vegetation and geomorphology data and any outreach activities.

Deliverable description: A detailed written progress report on all activities accomplished on the project during the reporting period.

Deliverable due date: December 31, 2009, June & Dec, 2010, 2011, 2012 and June 2013

Reimbursable cost: $11,655.00

Task # 9 Data Analyses and Final report

A comprehensive final report will be submitted that includes a summary of all methodologies used, outcomes of all Tasks, analysis of all Project data, suggestions for any changes or future actions, and an evaluation of the success of meeting Project objectives. In addition, the final report analyses will be in accordance with the Monitoring Plan (Task #2). A copy of all data generated during this project will be submitted with the final report.

Task Purpose: To provide a comprehensive analyses and final report for public distribution that gives a detailed description of the project and showcases its benefits to the State of Arizona.

Deliverable description: Final report

Deliverable due date: December 31, 2013

Fixed cost: $10,815.00

TOTAL GRANT COST: $109,725.00

VI. BUDGET DETAIL

A. DETAILED BUDGET BREAKDOWN GRANT FUNDS

Task 1: Permission, Agreements

Task 1 Budget	2009	2010	2011	2012	2013	Total
Direct Labor Costs						
Other Direct Costs						
Outside Services						
Capital Outlay						
Administrative Costs						
Total						$0.00

Task 2: Develop Project Work Plans

Task 2 Budget	2009	2010	2011	2012	2013	Total
Direct Labor Costs						
RC&D Staff 20 hr. @ $20.00	$400.00					$400.00
Other Direct Costs						
Supplies (paper/copier)	$200.00					$200.00
Outside Services-Contractor $200/day x 2 x 5 days	$2,000.00					$2,000.00

Capital Outlay						
Administrative Costs	$130.00					$130.00
Total	$2,730.00					$2,730.00

Task 3: Construction of Fence

Task 3 Budget	2009	2010	2011	2012	2013	Total
Direct Labor Costs						
Ranch Staff 110 hr. x 4 @ $10	$4,400.00					$4,400.00
Outside Services						
Capital Outlay						
Fencing Materials	$9,600.00					$9,600.00
Administrative Costs	$700.00					$700.00
Total	$14,700.00					$14,700.00

Task 4: Establish Monitoring Sites

Task 4 Budget	2009	2010	2011	2012	2013	Total
Direct Labor Costs						
Other Direct Costs						
Outside Services-Contractor 5 Riparian Clusters	$15,000.00					$15,000.00
Labor $200 day x 2 = $400 x 7 days = $2,800.00						
Travel 200 mi. @ $.485 = $145.50						
Supplies (field markers, etc.)						
Outside Services-Contractor 7 Grassland Transects	$2,800.00					$2,800.00

Labor $200/day x 2 = $400						
Administrative Costs	$890.00					$890.00
Total	$18,690.00					$18,690.00

Task 5: Monitoring (Vegetative and Geomorphology)

Task 5 Budget	2009	2010	2011	2012	2013	Total
Direct Labor Costs						
Other Direct Costs						
Outside Services-Contractor Read 7 Grassland Transects $200/day x 14 days/yr		$2,800.00	$2,800.00	$2,800.00	$2,800.00	$11,200.00
Outside Services-Contractor Read 5 Riparian Clusters Labor 2 @ $200/day x 10 days/yr		$4,000.00	$4,000.00	$4,000.00	$4,000.00	$16,000.00
Administrative Costs		$340.00	$340.00	$340.00	$340.00	$1360.00
Total		$7,140.00	$7,140.00	$7,140.00	$7,140.00	$28,560.00

Task 6: Data Entry

Task 6 Budget	2009	2010	2011	2012	2013	Total
Direct Labor Costs						
Other Direct Costs						
Outside Services-Contractor 10 days/yr. x $200/day	$2,000.00	$2,000.00	$2,000.00	$2,000.00	$2,000.00	$10,000.00
Capital Outlay						
Administrative Costs	$100.00	$100.00	$100.00	$100.00	$100.00	$500.00
Total	$2,100.00	$2,100.00	$2,100.00	$2,100.00	$2,100.00	$10,500.00

Task 7: Implementation of Outreach Plan

Task 7 Budget	2009	2010	2011	2012	2013	Total
Direct Labor Costs						
RC&D Salary-Material Development 50 hr. @ $20	$1000.00	$1000.00	$1000.00	$1000.00	$1000.00	$5,000.00
Other Direct Costs						
Facilities Use/Meeting Room Rental/vans	$500.00	$500.00	$500.00	$500.00	$500.00	$2,500.00
Supplies for brochures/flyers	$200.00	$200.00	$200.00	$200.00	$200.00	$1,000.00
Travel for presentations at professional meetings		$2,500.00		$2,500.00		$5,000.00
Outside Services-Contractor 2 @ $200/day x 3 da/yr	$1,200.00	$1,200.00	$1,200.00	$1,200.00	$1,200.00	$6,000.00
Capital Outlay						
Administrative Costs	$145.00	$270.00	$145.00	$270.00	$145.00	$975.00
Total	$3,045.00	$5,670.00	$3,045.00	$5,670.00	$3,045.00	$20,475.00

Task 8: Progress Report

Task 8 Budget	2009	2010	2011	2012	2013	Total
Direct Labor Costs						
RC&D Salary 30 hrs. @ $20	$600.00	$600.00	$600.00	$600.00	$600.00	$3,000.00
Other Direct Costs						
Outside Services-Contractor 2 @ $200/day x 2 days	$800.00	$1,600.00	$1,600.00	$1,600.00	$1,600.00	$7,200.00
Printing and Copies	$100.00	$200.00	$200.00	$200.00	$200.00	$900.00
Capital Outlay						
Administrative Costs	$75.00	$120.00	$120.00	$120.00	$120.00	$555.00
Total	$1,575.00	$2,520.00	$2,520.00	$2,520.00	$2,520.00	$11,655.00

Task 9: Data Analysis and Final Report

Task 9 Budget	2009	2010	2011	2012	2013	Total
Direct Labor Costs						
RC&D Salary 40 hrs. @ $20					$800.00	$800.00
Other Direct Costs						
Outside Services-Contractor					$9,500.00	$9,500.00
Capital Outlay						
Administrative Costs					$515.00	$515.00
Total					$10,815.00	$10,815.00

GRAND TOTAL	$42840.00	$17430.00	$14805.00	$17430.00	$25620.00	118,125.00

B. MATCHING FUNDS BREAKDOWN

Matching funds for this project are provided by the following:

- **NRCS Environmental Quality Incentives Program (EQIP) funds - $241,397.00 for brush management on 2,075 Acres of the Babocomari Ranch to reduce runoff and improve grass cover on the watershed.**
- **NRCS Environmental Quality Incentives Program (EQIP) funds- $78,779.41 for brush management on 1267 acres of the Babocomari Ranch to reduce runoff and improve grass cover on the watershed.**
- **NRCS Environmental Quality Incentives Program (EQIP) funds- $73,076.49 for livestock pipeline, storage and trough to provide alternate water for livestock so they do not need to use the Creek as a water source**
- **NRCS Wildlife Habitat Improvement (WHIP) funds $1557.00, grade stabilization structure and fish barrier installation on creek through Babocomari Ranch.**
- **Fish & Wildlife Service- $20,000.00 Fish Barrier Babocomari River/habitat improvement**
- **Arizona Game & Fish Dept.- $2500.00 =$500.00 per year- personnel - Annual fish & frog surveys of O'Donnell, Post Canyon and Turkey Creek**
- **Arizona Game & Fish Dept- $8,500.00 to install solar pump & livestock water tank in Babocomari drainage**
- **National Audubon Society- $10,000.00**

  Lodging/accommodations for project team- $200.00/da x 10 days per year= $2000.00/yr
- **Coronado RC&D – clerical assistance 125 hours x $20 = $2500.00**

VII. SUPPLEMENTAL INFORMATION

A. SHPO Included as an insert

B. KEY PERSONNEL

Judy Leighton, Project Manager, - is the Grant Administrator for the Coronado RC&D Area

Twenty years of grant writing and administration of grant funds. Positions held have been management positions with budget preparation and oversight. B.S. in Human Resources Management, Friends University, Wichita, Kansas, Paralegal Certificate and Administrator-in-Training education which resulted in licensing as a Nursing Home Administrator. Attended the recent Arizona Water Protection Fund Workshop.

WORK EXPERIENCE:

- Licensed Nursing Home Administrator of 96 bed nursing home
- Victim/Witness Coordinator – Administrator of Barton County Attorney's Office 10 years. Wrote and administered VOCA grants.
- Twenty years of management experience that includes budget preparation and budget administration.
- Presently serving as Grant Administrator for Coronado RC & D

Dan Robinett-Robinett has a BS Degree in Range Management from the University of Arizona, 1972, served in the US Army 1972-74 and worked for the Natural Resources Conservation Service (NRCS) from 1974-2006 as a Rangeland Management Specialist. During that time, he was responsible for directing the southern Arizona range management program for the agency, training new employees and ranchers, quality control of practices and monitoring of large projects. Retired in 2007, he is a certified Range Specialist (SRM # 0024) and now owns and operates Robinett Rangeland Resources LLC, a technical consulting company.

Linda Kennedy graduated from Fort Hays State University, Hays KS, with a B.S. and M.S. in biology. She went on to earn a doctorate in botany from Arizona State University, Tempe. Her dissertation, Mycorrhizal Ecology of *Sporobolus wrightii*, examined the symbiotic relationship between certain soil fungi and big sacation, a facultative riparian bunchgrass. Working now for the National Audubon Society, she is the Director of the Appleton-Whittell Research Ranch, an 8000-acre sanctuary and research facility in southeastern Arizona. Her responsibilities include land stewardship, initiating and supervising research projects, and planning and implementing educational and outreach programs.

Doug Ruppel-Ranch Manager Babocomari Ranch, has a BS Degree from Colorado State University, and has been in his current position for ten years. Doug oversees all ranch operations, has practiced excellent stewardship and has provided leadership for all of the conservation practices implemented on the ranch during his tenure. Doug was also the manager of the Walking Cane Ranch east of Flagstaff for 7 years. The Walking Cane combines approx. 110,000 acres of federal permits, state grazing leases, private grazing leases and deeded land to run approx. 600 cows. He also serves as a board member on the Santa Cruz Natural Resource Conservation District. Doug will supervise the installation and maintenance of the fence to be installed as part of this project and will work closely with the RC&D and the principle investigators on the project to use data obtained for management decisions.

Donna Matthews has been employed by the Natural Resources Conservation Service (NRCS) for the past 22 years, with 15 years in her current position as RC&D Coordinator for Coronado RC&D in southeastern Arizona. She has a BS Degree in biology and chemistry from Bemidji State University, Minnesota and MS in Agriculture from North Dakota State University. Over the past 15 years, she has worked with multiple partners in implementing natural resource projects.

Kim Webb has served as the outreach coordinator for Coronado RC&D for the past eight years, organizing educational events, designing and developing informational brochures, flyers, presentations and fact sheets related to projects and programs.

Jeff Simms works for the Tucson Field Office – San Pedro Riparian National Conservation Area Fishery Biologist with 18 years of experience working for the U.S. Bureau of Land Management. Some of the more noteworthy projects Jeff has worked on include stream restorations, habitat improvement for native fish in Southern AZ, development of habitat management plans for aquatic and riparian resources – Mule Shoe CMA, San Pedro River RNCA, Las Cienegas NCA and Gila Box RNCA.

Education:

- Certified Fisheries Professional (American Fisheries Society)
- Received Master of Science in Renewable Natural Resources with a major in Wildlife and Fisheries Science from the University of Arizona, Tucson
- Received Bachelor of Science in Renewable Natural Resources with major in Fisheries Science from the University of Arizona, Tucson

Jeff will act as a science advisor on the project.

STATE HISTORIC PRESERVATION OFFICE
Review Form

In accordance with the State Historic Preservation Act (SHPO), A.R.S. 41-861 *et seq*, effective July 24, 1982, each State agency must consider the potential of activities or projects to impact significant cultural resources. Also, 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. Therefore, it is understood that **recipients of state funds are required to comply with this law** throughout the project period. All projects that affect the ground-surface that are funded by AWPF require SHPO clearance, **including those on private and federal lands.**

The State Historic Preservation Office (SHPO) must review each grant application recommended for funding in order to determine the effect, if any, a proposed project may have on archaeological or cultural resources. To assist the SHPO in this review, the following information MUST be submitted with each application for funding assistance:

- A completed copy of this form, and
- A United States Geological Survey (USGS) 7.5 minute map
- A copy of the cultural resources survey report if a survey of the property has been conducted, and
- A copy of any comments of the land managing agency/landowner (i.e., state, federal, county, municipal) on potential impacts of the project on historic properties.
  NOTE: If a federal agency is involved, the agency must consult with SHPO pursuant to the National Historic Preservation Act (NHPA); a state agency must consult with SHPO pursuant to the State Historic Preservation Act (SHPA),
  OR
- A copy of SHPO comments if the survey report has already been reviewed by SHPO.

Please answer the following questions:

1. Grant Program: Arizona Water Protection Fund

2. Project Title: Babocomari River Riparian Protection Project

3. Applicant Name and Address: Coronado Resource Conservation & Development Area, 656 N Bisbee Ave, Willcox, AZ 85643

4. Current Land Owner/Manager(s): Brophy Family -Babocomari Ranch, Audubon Society-Appleton Whittell Research Ranch

5. Project Location, including Township, Range, Section: See attached, Babocomari is a Land Grant that was not surveyed, locations are given in GPS coordinates

6. Total Project Area in Acres (or total miles if trail): 1.33 AC (2.2 miles of fence)

7. Does the proposed project have the potential to disturb the surface and/or subsurface of the ground?
   ☒ YES ☐ NO

8. Please provide a brief description of the proposed project and specifically identify any surface or subsurface impacts that are expected: 2.2 miles of fencing will be installed above the riparian area to control livestock access. This will be a 3 wire electric fence with minimal ground disturbance in the rocky terrain. The fence will be relocated if necessary to avoid impacting any cultural resources.

9. Describe the condition of the current ground surface within the entire project boundary area (for example, is the ground in a natural undisturbed condition, or has it been bladed, paved, graded, etc.). Estimate horizontal and vertical extent of existing disturbance. Also, attach photographs of project area to document condition: Area is grazing land, natural undisturbed condition

10. Are there any known prehistoric and/or historic archaeological sites in or near the project area? ☐ YES ☒ NO

11. Has the project area been previously surveyed for cultural resources by a qualified archaeologist? ☐ YES ☒ NO ☐ UNKOWN

    If YES, submit a copy of the survey report. Please attach any comments on the survey report made by the managing agency and/or SHPO

12. Are there any buildings or structures (including mines, bridges, dams, canals, etc.), which are 50-years or older in or adjacent to the project area? ☒ YES ☒ NO

    If YES, complete an Arizona Historic Property Inventory Form for each building or structure, attach it to this form and submit it with your application.

13. Is your project area within or near a historic district? ☐ YES ☒ NO

    If YES, name of the district:

Please sign on the line below certifying all information provided for this application is accurate to the best of your knowledge.

Richard Searle / 6/6/08 — RICHARD SEARLE

Applicant Signature /Date — Applicant Printed Name

FOR SHPO USE ONLY
SHPO Finding: ☐ Funding this project will not affect historic properties. ☐ Survey necessary – further GRANTS/SHPO consultation required (*grant funds will not be released until consultation has been completed*) ☐ Cultural resources present – further GRANTS/SHPO consultation required (*grant funds will not be released until consultation has been completed*)
SHPO Comments
For State Historic Preservation Office: Date:

Babocomari Ranch – new fence location

GPS Coordinates are provided to identify the location as the Babocomari Ranch is a Land Grant Ranch that was not surveyed.

East side (ties into existing fence at Railroad bridge and the River pasture)

N 31 degrees, 38' 10" and W 110 degrees, 25' 33.9"

Middle section (in the foothills north of Babocomari creek)

N 31 degrees, 38' 33" and W 110 degrees, 26' 34"

West end (ties into existing fence around the Cienega pasture)

N 31 degrees, 37' 58.9" and W 110 degrees, 27' 27.5"

1. RIPARIAN FENCE

The Babocomari River at the Railroad Bridge on the New Mexico- Arizona Railway operated by Southern Pacific until 1962. It was built in 1882. Two miles of new fence will isolate the river above the bridge and to the left in this photo. The part of the river below the bridge (lower right) is already fenced into the three mile long, River Pasture (see map).

C. PROJECT PHOTOS

Photo 1

Rural subdivision in the Vaughn Canyon sub-watershed of the Babocomari River (nine miles south of Sonoita). As growth reaches into the rural areas, the sub watershed in the Sonoita-Elgin are being subdivided into parcels that change the hydrology of the watershed. This type of rapid growth makes it imperative that areas that have the potential for restoration and protection be identified and managed with the best science available.

Photo 2 The Babocomari Cienega above the ranch headquarters. The river exits to the upper left. Looking to the southeast

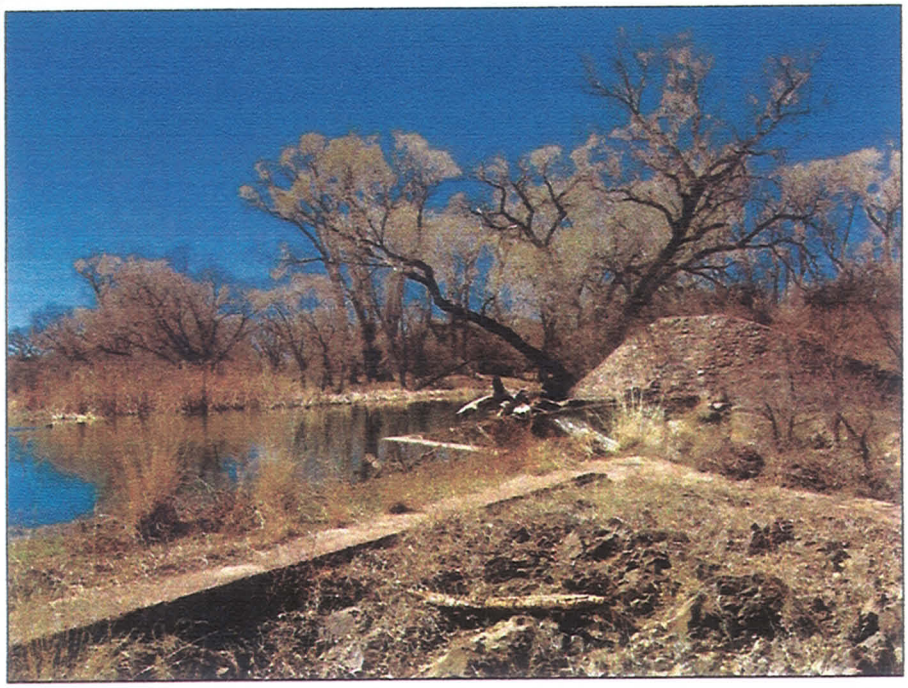


Photo 3 -The large dam and drop structure at the Babocomari Ranch headquarters built in 1936 37 by the CCC to control head-ward gully erosion of the river channel. It functions perfectly today. It causes the river to continue to spread out across the large sacaton bottom retaining a portion of the historic function

Photo 4 - RIPARIAN FENCE The Babocomari River at the Railroad Bridge on the New Mexico- Arizona Railway operated by Southern Pacific until 1962. It was built in 1882. Two miles of new fence will isolate the river above the bridge and to the left in this photo. The part of the river below the bridge (lower right) is already fenced into the three mile long, River Pasture (see map).

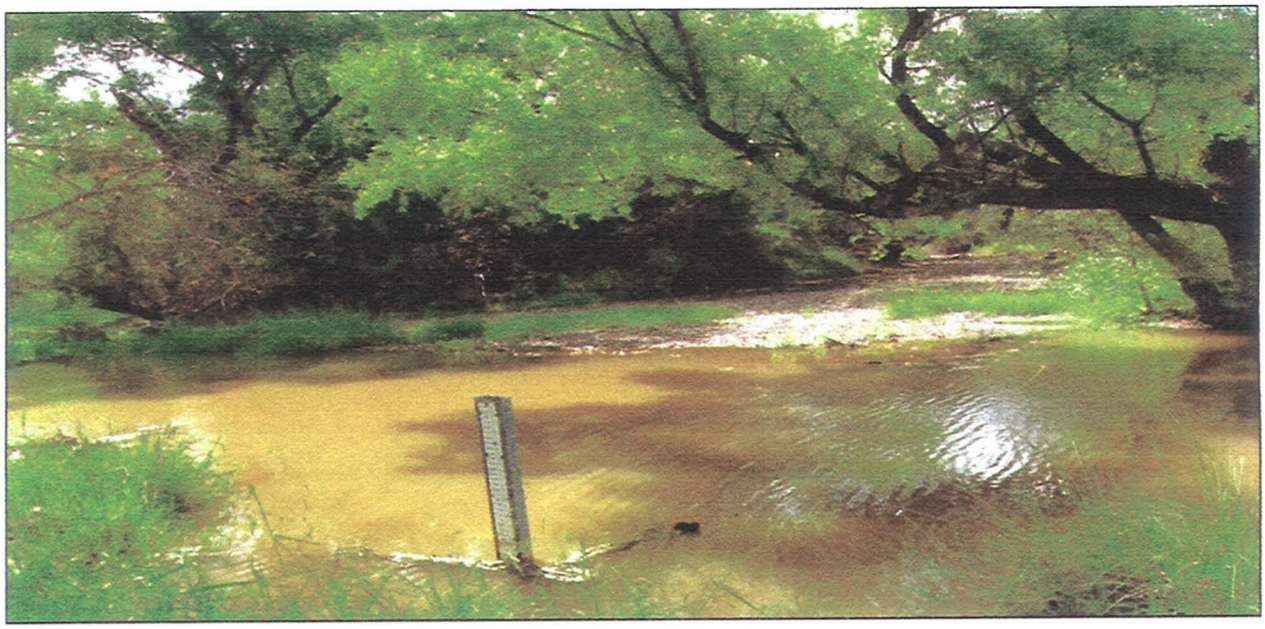


Photo 5 - USGS stream gauge on the Babocomari river near the mouth of Blacktail canyon at stream monitoring location #1.

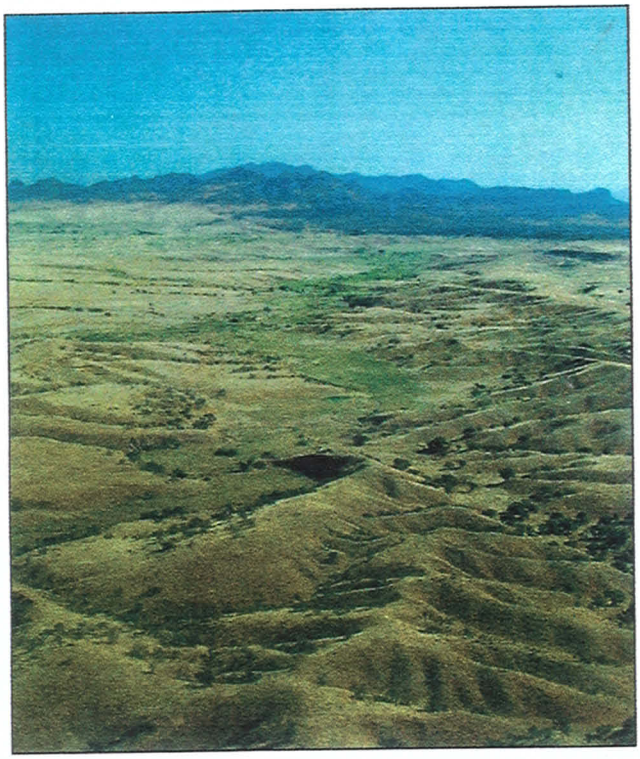


Photo 6- A view from Turkey creek on the Audubon Research Ranch. This is looking north towards its confluence with O'Donnell canyon and finally with the Babocomari river in the background.

O'Donnell and Turkey Creek will be monitored to analyze their impact on the river/riparian system.

Photo 7- Post Canyon in flood from a three inch rain in the summer of 2007. Audubon Research Ranch.

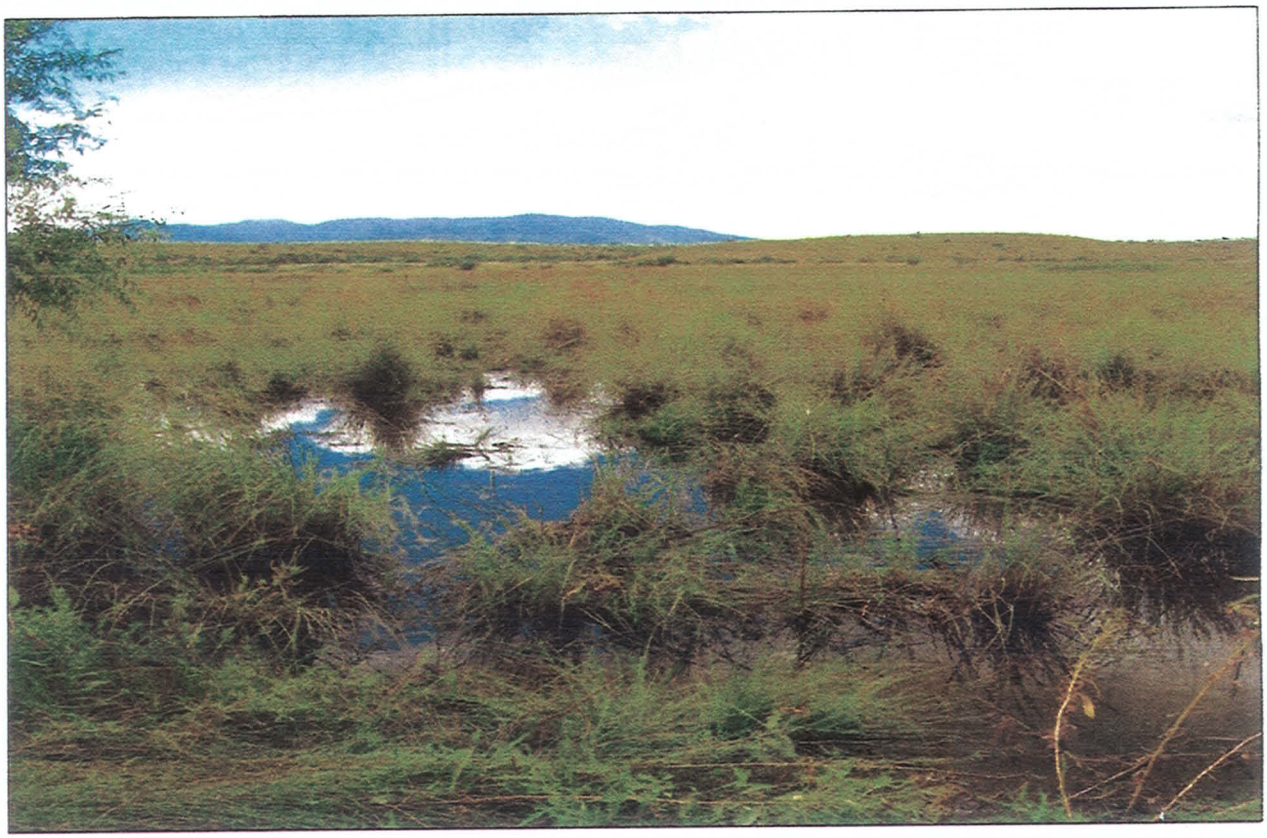


Photo 8 -The O'Donnell sacaton bottom in flood. This three mile long by one half mile wide floodplain absorbs the flood flows of the 28,461 acre sub-watershed of O'Donnell Canyon. It occurs on both ranch properties.

Photo 9- The Research Ranch Headquarters looking to the Southeast.

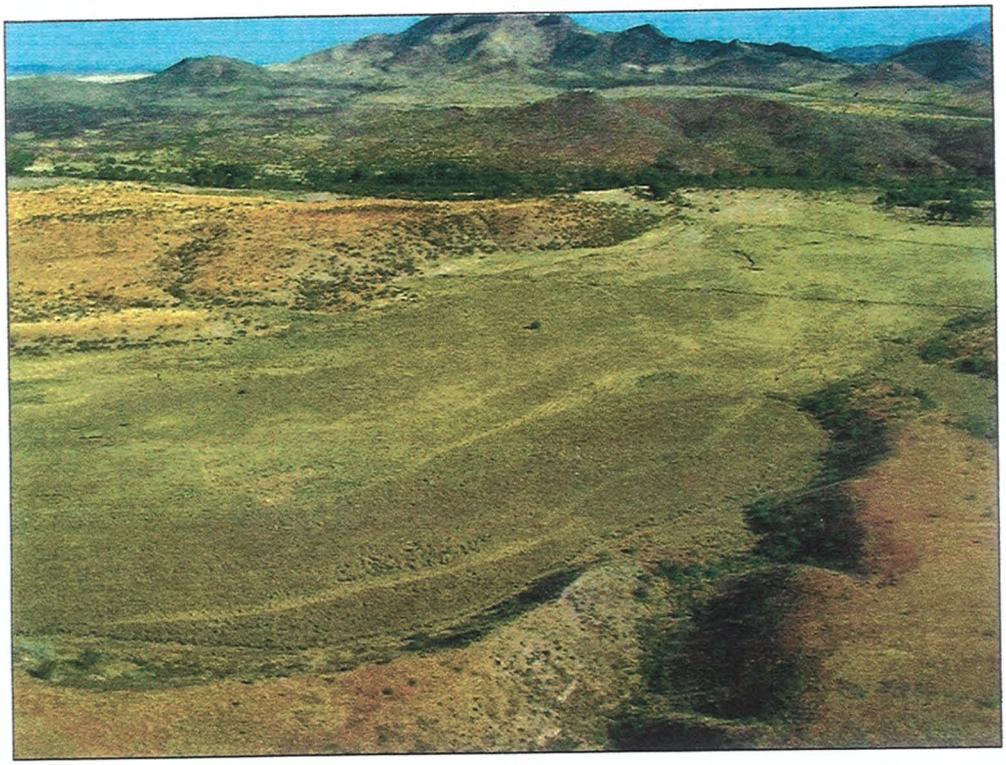


Photo 10- The floodplain of O'Donnell Canyon at the confluence with the Babocomari River (green trees in the background).

V. METHODS

A. Photographs

1. *General Description* Photographs and videotapes can be valuable sources of information in portraying resource values and conditions. Therefore pictures should be taken of all study areas. Both photographs and videos can be taken at photo plots or photo points. The difference between photo plots and photo points is that, with photo points, closeup photographs of a permanently marked plot on the ground are not taken. Use close-up and/or general view pictures with all of the study methods. Comparing pictures of the same site taken over a period of years furnishes visual evidence of vegetation and soil changes. In some situations, photo points could be the primary monitoring tool. All pictures should be in color, regardless of whether they are the primary or secondary monitoring tool.

2. *Equipment* The following equipment is suggested for the establishment of photo plots:

   - Study Location and Documentation Data form (see Appendix A)
   - Photo Identification Label (see Appendix C)
   - Frame to delineate the 3- x 3-foot, 5- x 5-foot, or 1- x 1- meter photo plots (see Illustrations 1 and 2)
   - Four rods to divide the 3- x 3- foot and 1- x 1-meter photo plot into nine square segments
   - Stakes of 3/4 - or 1- inch angle iron not less than 16 inches long
   - Hammer
   - 35-mm camera with a 28-mm wide-angle lens and film
   - Small step ladder (for 5- x 5-foot photo plots)
   - Felt tip pen with waterproof ink

3. *Study Identification* Number studies for proper identification to ensure that the data collected can be positively associated with specific studies on the ground (see Appendix B).

4. *Close-up Pictures* Close-up pictures show the soil surface characteristics and the amount of ground surface covered by vegetation and litter. Close-up pictures are generally taken of permanently located photo plots.

   a The location of photo plots is determined at the time the studies are established. Document the location of photo plots on the Study Location and Documentation Data form to expedite relocation (see Appendix A).

   b Generally a 3- X 3-foot square frame is used for photo plots; however, a different size and shape frame may be used. Where new studies are being established, a 1-meter x 1-meter photo plot is recommended. Frames can be made of PVC pipe, steel rods, or any similar material. Illustration 1 shows a diagram of a typical photo plot frame constructed of steel rod.

c Angle iron stakes are driven into the ground at two diagonal corners of the frame to permanently mark a photo plot (see Illustration 3). Paint the stakes with bright-colored permanent spray paint (yellow or orange) to aid in relocation. Repaint these stakes when subsequent pictures are taken.

d The Photo Identification Label is placed flat on the ground immediately adjacent to the photo plot frame (see Appendix C).

e The camera point, or the location from which the close-up picture is taken, should be on the north side of the photo plot so that repeat pictures can be taken at any time during the day without casting a shadow across the plot.

f To take the close-up pictures, stand over the photo plot with toes touching the edge of the frame. Include the photo label in the photograph. Use a 35-mm camera with a 28-mm wide-angle lens.

g A step ladder is needed to take close-up pictures of photo plots larger than 3- x 3-foot.

5. *General View Pictures* General view pictures present a broad view of a study site. These pictures are often helpful in relocating study sites.

a If a linear design is used, general view pictures may be taken from either or both ends of the transect. The points from which these pictures are taken are determined at the time the studies are established. Document the location of these points on the Study Location and Documentation Data form to expedite relocation (see Appendix A).

b The Photo Identification Label is placed in an upright position so that it will appear in the foreground of the photograph (see Appendix C).

c To take general view pictures, stand at the selected points and include the photo label, a general view of the site, and some sky in the pictures.

d A picture of a study site taken from the nearest road at the time of establishment of the study facilitates relocation.

6. *Photo Points* General view photographs taken from a permanent reference point are often adequate to visually portray dominant landscape vegetation. It is important that the photo point location be documented in writing and that the photo include a reference point in the foreground (fencepost, fence line, etc.), along with a distinct landmark on the skyline. Photographs taken from photo points should be brought to the field to assist in finding the photo point and to ensure that the same photograph (bearing, amount of skyline, etc.) is retaken. The photograph should be taken at roughly the same time each year to assist in interpreting changes in vegetation. As always, recording field notes to supplement the photographs is a good idea.

Photo points are especially well adapted for use by external groups who are interested in monitoring selected management areas. Photo points require a

camera, film, and local knowledge of photo point location; given these, they are easy to set up and retake. Agencies can encourage participation by external groups or permittees by providing the photographer with film and development. Double prints allow the agency and photographer to keep copies of photographs for their files. Negatives should generally be kept and filed at the agency office.

7. *Video Images* Video cameras, i.e., camcorders, are now available and are able to record multiple images of landscapes for monitoring. While video images provide new ways to record landscape images, limitations in their use should also be considered. Video tapes, especially the quality of the image, may begin to deteriorate within 5 years. These images can be protected by conversion to digital computer images (expensive) or rerecording the original tape onto a new blank tape.

   Comparing repeat video images is difficult, especially if the same landscape sequences are not repeated in the same way on subsequent video recordings. Video cameras are also more susceptible to dust and heat damage and cost considerably more than 35-mm cameras. Advantages and disadvantages of video cameras should be carefully considered prior to implementing a video monitoring system.

8. *Repeat Pictures* When repeat pictures are taken, follow the same process used in taking the initial pictures. Include the same area and landmarks in the repeat general view pictures that were included in the initial pictures. Take repeat pictures at approximately the same time of year as the original pictures.

9. *General Observations* General observations concerning the sites on which photographs are taken can be important in interpreting the photos. Such factors as rodent use, insect infestation, animal concentration, fire, vandalism, and other site uses can have considerable impact on vegetation and soil resources. This information can be recorded on note paper or on study method forms themselves if the photographs are taken while collecting other monitoring data.

10. *References*

USDI, Bureau of Land Management. 1985. Rangeland monitoring - Trend studies TR4400-4.

USDA, Forest Service. 1994. Rangeland Analysis and Management Training Guide, Rocky Mountain Region USDA Forest Service Denver, CO.

Rangeland Monitoring

Photo Plot Frame—5- x 5-foot

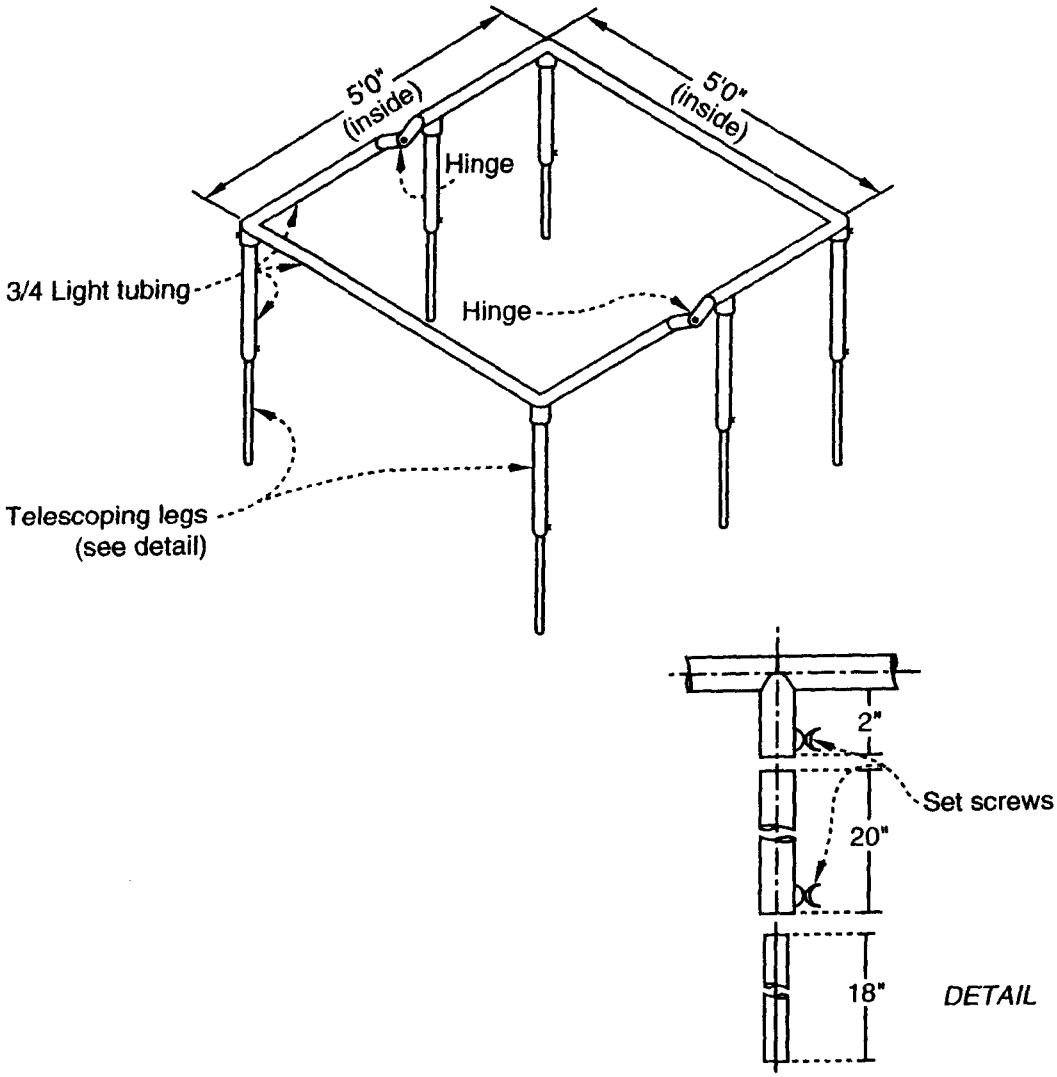
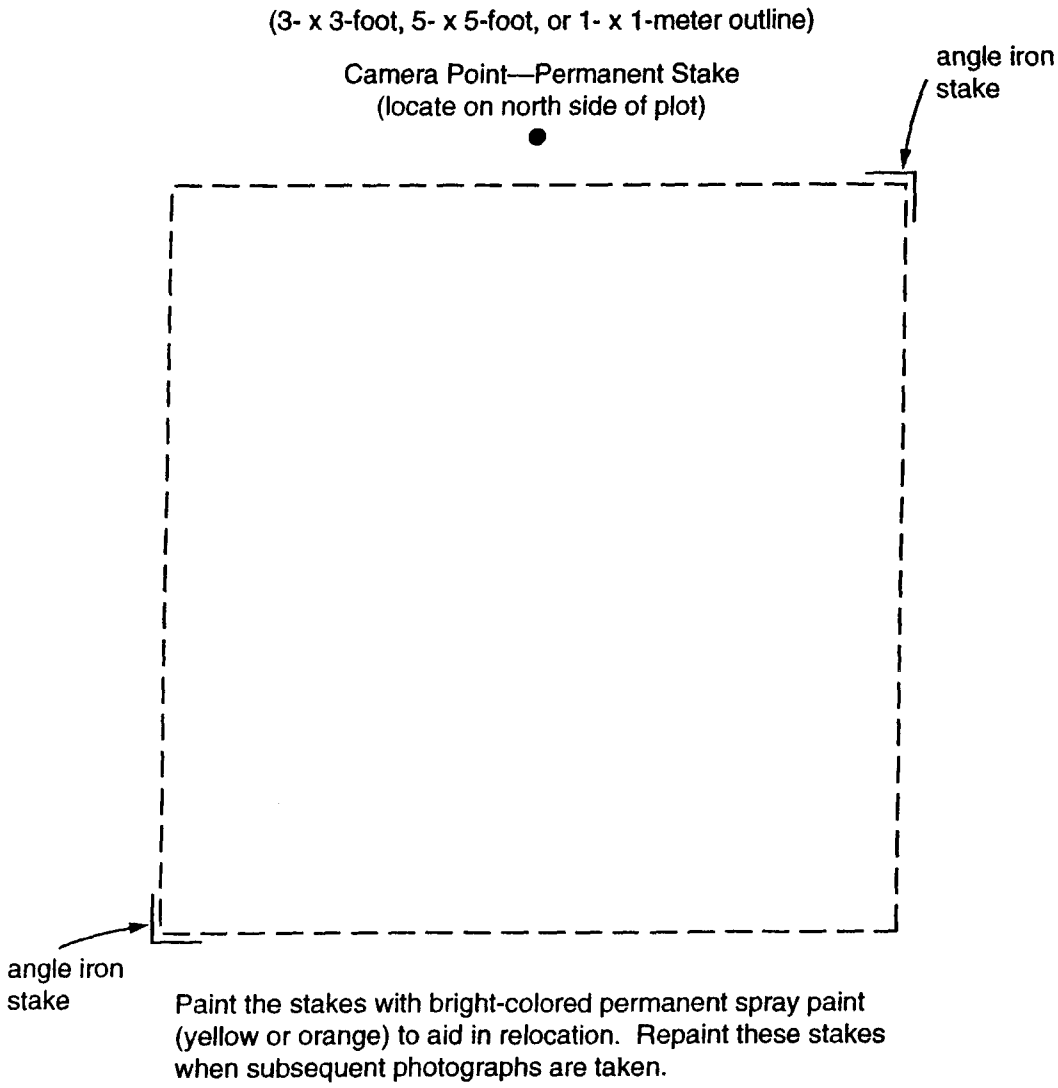


Illustration 2

Rangeland Monitoring

Permanent Photo Plot Location



Paint the stakes with bright-colored permanent spray paint (yellow or orange) to aid in relocation. Repaint these stakes when subsequent photographs are taken.

Illustration 3

B. Frequency Methods - Pace Frequency, Quadrat Frequency, and Nested Frequency Methods

1. *General Description* All three methods consist of observing quadrats along transects, with quadrats systematically located at specified intervals along each transect. The only differences in these technique are the size and configuration of the quadrat frames and the layout of the transect. The following vegetation attributes are monitored with this method:

   - Frequency
   - Basal cover and general cover categories (including litter)
   - Reproduction of key species (if seedling data are collected)

   It is important to establish a photo plot (see Section V.A) and take both close-up and general view photographs. This allows the portrayal of resource values and conditions and furnishes visual evidence of vegetation and soil changes over time.

2. *Areas of Use* This method is applicable to a wide variety of vegetation types and is suited for use with grasses, forbs, and shrubs.

3. *Advantages and Limitations*

   a Frequency sampling is highly objective, repeatable, rapid, and simple to perform, and it involves a minimum number of decisions. Decisions are limited to identifying species and determining whether or not species are rooted within the quadrats (presence or absence).

   b Frequency data can be collected in different-sized quadrats with the use of the nested frame. When a plant of a particular species occurs within a plot, it also occurs in all of the successively larger plots. Frequency of occurrence for various size plots can be analyzed even though frequency is recorded for only one size plot. This eliminates problems with comparing frequency data from different plot sizes. Use of the nested plot configuration improves the chance of selecting a proper size plot for frequency sampling.

   c Cover data can also be collected at the same time frequency data is gathered. However, cover data collected in this manner will greatly overestimate cover; unless the tines are honed to a fine point, observer bias will come into play. Another limitation is that the use of one size quadrat will likely result in values falling outside the optimum frequency range (greater than 20 percent to less than 80 percent) for some of the species of interest.

4. *Equipment* The following equipment is needed (see also the equipment list in Section V.A, page 31, for the establishment of the photo plot):

   - Study Location and Documentation Data form (see Appendix A)
   - Frequency form (see Illustration 4)
   - Nested Frequency form (see Illustration 5)
   - Permanent yellow or orange spray paint
   - Frequency frames (see Illustrations 6 and 7)

- One transect location stake: 3/4 - or 1-inch angle iron not less than 16 inches long
- Hammer
- Tally counter (optional)
- Compass
- Steel post and driver
- Tape: 50-, 100-, or 200-foot delineated in tenths and hundreds or a metric tape of the desired length.

5. *Training* A minimum amount of training is needed for this method. Examiners must be able to identify the plant species and be able to tell whether or not a species occurs, according to study specifications, within a quadrat. Examiners must be familiar with the cover categories and how to collect cover data using the tines on the quadrat frame.

6. *Establishing Studies* Careful establishment of studies is a critical element in obtaining meaningful data (see Section III).

a **Site Selection** The most important factor in obtaining usable data is selecting representative areas (critical or key areas) in which to run the study (see Sections II.D). Study sites should be located within a single plant community within a single ecological site. Transects and sampling points need to be randomly located within the critical or key areas (see Section III).

b **Pilot Studies** Collect data on several pilot studies to determine the number of samples (transects or observation points) and the number and size of quadrats needed to collect a statistically valid sample (see Section III.B.8).

c **Selecting Quadrat Size** The selection of quadrat size is important and depends on the characteristics of the vegetation to be sampled (see Section III.B.6).

(1) As a rule of thumb, it is expected that all frequency percentages for important species should fall between 10 and 90 percent or, if possible, between 20 and 80 percent. This will provide the greatest possible chance for detecting an important trend for a species when the study is read again. Use a frame size that will produce frequencies falling in this range for the greatest number of species possible.

(2) To build a sample frame, see Illustration 6, which shows an example of a frequency frame.

(3) Use the same size quadrat throughout a study and for rereading the study. If frequencies for a specific species approach the extremes of either 0 or 100 percent, it may be necessary to use a different sized quadrat for that species. The nested plot concept would be suitable in this instance.

d **Nested Plot Technique** The use of one size plot is usually not adequate to collect frequency data on all the important species within a community. For each species occurring on a site, there is a limited range of plot sizes capable of producing frequency percentages between 20 and 80 percent. A plot size appropriate for one species may not be appropriate for another. The nested plot

concept is a simple approach to collecting data on two or more different sized plots at one time. Several different sized plots are placed inside each other in a smallest to largest sequence (see Illustration 7).

e **Number of Studies** Establish at least one frequency study on each study site; establish more if needed (see Sections II.D and III.B).

f **Study Layout** Frequency data can be collected using either the baseline, macroplot, or linear study designs described in Section III.A.2 beginning on page 8. The baseline technique is the one most often used.

Align a tape (100-, or 200-foot, or metric equivalent) in a straight line by stretching it between the baseline beginning stake and the baseline end point stake (see Figure 4 on page 13.) A pin may also be driven into the ground at the midpoint of the transect. Do not allow vegetation to deflect the alignment of the tape. A spring and pulley may be useful to help maintain a straight line.

With the baseline technique, any number of transects can be run perpendicularly to the baseline, depending on the intensity of the sample needed (see Figure 1 on page 9). Each transect originates at a randomly selected mark along the baseline. The randomization is restricted so that half of the transects are randomized on each side of the halfway mark. (Directions for randomly selecting the location of transects to be run off of a baseline using random number tables are given in Appendix D.)

The starting point for each transect off the base line and the distance between each quadrat should not be any closer than the width of the quadrat being used to avoid the possibility that any two quadrats might overlap.

g **Reference Post or Point** Permanently mark the location of each study with a reference post and study location stake (see beginning of Section III).

h **Study Identification** Number studies for proper identification to ensure that the data collected can be positively associated with specific studies on the ground (see Appendix B).

i **Study Documentation** Document pertinent information concerning the study on the Study Location and Documentation Data form (see beginning of Section III and Appendix A).

7. *Taking Photographs* The directions for establishing photo plots and for taking close-up and general view photographs are given in Section V.A.

8. *Sampling Process* In addition to collecting the specific study data, general observations should be made of the study sites (see Section II.F).

a **Running the Transect** Study data are collected along several transects. The location of each transect (distance along the baseline) and the direction (to left or right from the baseline) are randomly determined for each study site. A quadrat is read at the specified interval until all quadrats have been read. The interval between quadrats can be either paced or measured. To widen the area

transected, add additional paces or distance (20 paces, 50 feet) between quadrats. Additional transects can be added to obtain an adequate sample.

(1) Start each transect by placing the rear corner of the quadrat frame at the starting point along the baseline tape.

(2) Place the quadrat frame at the designated interval along a transect perpendicular to the baseline until the specified number of quadrats have been read. The interval between quadrats can be measured or estimated by pacing.

(3) When a transect is completed, move to the next starting point on the baseline tape and run the next transect.

b **Collecting Cover Data** Record, by dot count tally, the cover category at each of the four corners and at the tip of any tines on the frame. Enter this data in the Cover Summary section of the Frequency and Nested Frequency forms (see Illustrations 4 and 5). The cover categories are bare ground (gravel less than 1/12 inch in diameter is tallied as bare ground), litter, and gravel (1/12 inch and larger). Additional cover categories can be added as needed. Vegetation is recorded as basal hits or canopy layers in the bottom portion of the form. Up to three canopy layers can be recorded. For additional information on collecting vegetation cover data, see Section V.F.8.b on page 72. Cover data can also be recorded on the Cover Data form, Illustration 13, page 75.

Read the same points on the frame and the same number of points at each placement of the frame throughout a study and when rereading that study.

c **Collecting Frequency Data** Collect frequency data for all plant species. Record the data by species within each quadrat using the Frequency form (Illustration 4). Only one record is made for each species per quadrat, regardless of the number of individual plants of a species that occurs within the quadrat.

(1) Herbaceous plants (grasses and forbs) must be rooted in the quadrat to be counted.

(2) On many occasions, rooted frequency on trees and shrubs (including half shrubs) does not provide an adequate sample (occurring within 20% of the plots). To increase the sample size on trees and shrubs, the canopy overhanging the quadrat can be counted.

(3) Annual plants are counted whether green or dried.

(4) Specimens of the plants that are unknown should be collected and marked for later identification.

(5) Frequency occurrence of seedlings by plant species should be tallied separately from mature plants.

d **Nested Plot Method** Collect frequency data for all plant species. For uniformity in recording data, the four nested plots in a quadrat are numbered from 1 through 4, with the largest plot size corresponding with the higher number. Each time the quadrat frame is placed on the ground, determine the smallest size plot each species occurs in and record the plot number for that quadrat on the Nested Frequency form (Illustration 5).

9. *Calculations* Make the calculations and record the results in the appropriate columns on the Frequency form (see Illustration 4).

a **Cover** Calculate the percent cover for each cover category by dividing the number of hits for each category by the total number of hits for all categories, including hits on vegetation, and multiplying the value by 100. The total of the percent cover for all cover categories equals 100 percent. Additional information on calculating ground cover, canopy cover, and basal cover can be found in Section F.9 on page 73.

b **Frequency: Single Plot** On the Frequency form, Illustration 4, total the frequency hits by species. Calculate the percent frequency for each plant species by dividing the total number of hits for that species by the total number of quadrats sampled along the transect and multiplying the value by 100. Record the percent frequency on the form.

c **Frequency: Nested Plot** Percent frequency by species can be calculated for each transect and/or for the total of all transects.

(1) ***Compiling data*** Determine the number of occurrences for each species for each plot size.

(a) Count the number of occurrences of a species in plot 1 and record the value in the Hits portion of column 1 in the Frequency Summary portion of the Nested Frequency form (see Illustration 5).

(b) Count the number of occurrences of the same species in plot 2 and add this number to the number recorded for plot 1. Record this total in the Hits portion of column 2.

(c) Count the number of occurrences of the same species in plot 3 and add this number to the number recorded for plot 2. Record this total in the Hits portion of column 3.

(d) Count the number of occurrences of the same species in plot 4 and add this number to the number recorded for plot 3. Record this total in the Hits portion of column 4.

(2) ***Frequency for each transect*** Calculate the percent frequency of a plant species by plot size for a transect by dividing the number of occurrences by the number of quadrats sampled and multiplying the value by 100. Record in the "% Freq" section of the Frequency Summary portion.

(3) ***Total frequency for all transects*** Calculate the percent frequency of a plant species by plot size for the total of all transects by adding the occurrences of a species by plot size on all transects, dividing the total by the total number of quadrats sampled for the study, and multiplying the value by 100. Record the percent frequency in the appropriate plot size on a separate form.

10. *Data Analysis*

To determine if the change between sampling periods is significant, a Chi Square contingency table analysis should be used. Frequency must be analyzed separately for each species. Chi Square (See Technical Reference, *Measuring & Monitoring Plant Populations*) can also be used to detect changes in cover classes between sampling periods.

11. *References*

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Frequency

Page ____ of ____

Study Number	Date	Examiner	Allotment Name & Number	Pasture
Transect Location		Number of Quadrats	Quadrat Size	

Plant Species	Quadrat Number 0	10	20	30	40	50	60	70	80	90	100	Total

Cover Summary

Vegetation (Basal)	Vegetation (Canopy)	Litter	Bare Ground	Gravel/Stone	
Hits %Cover	Hits %Cover	Hits %Cover	Hits %Cover	Hits %Cover	Hits %Cover

Notes (use other side or another page)

Rangeland M oring

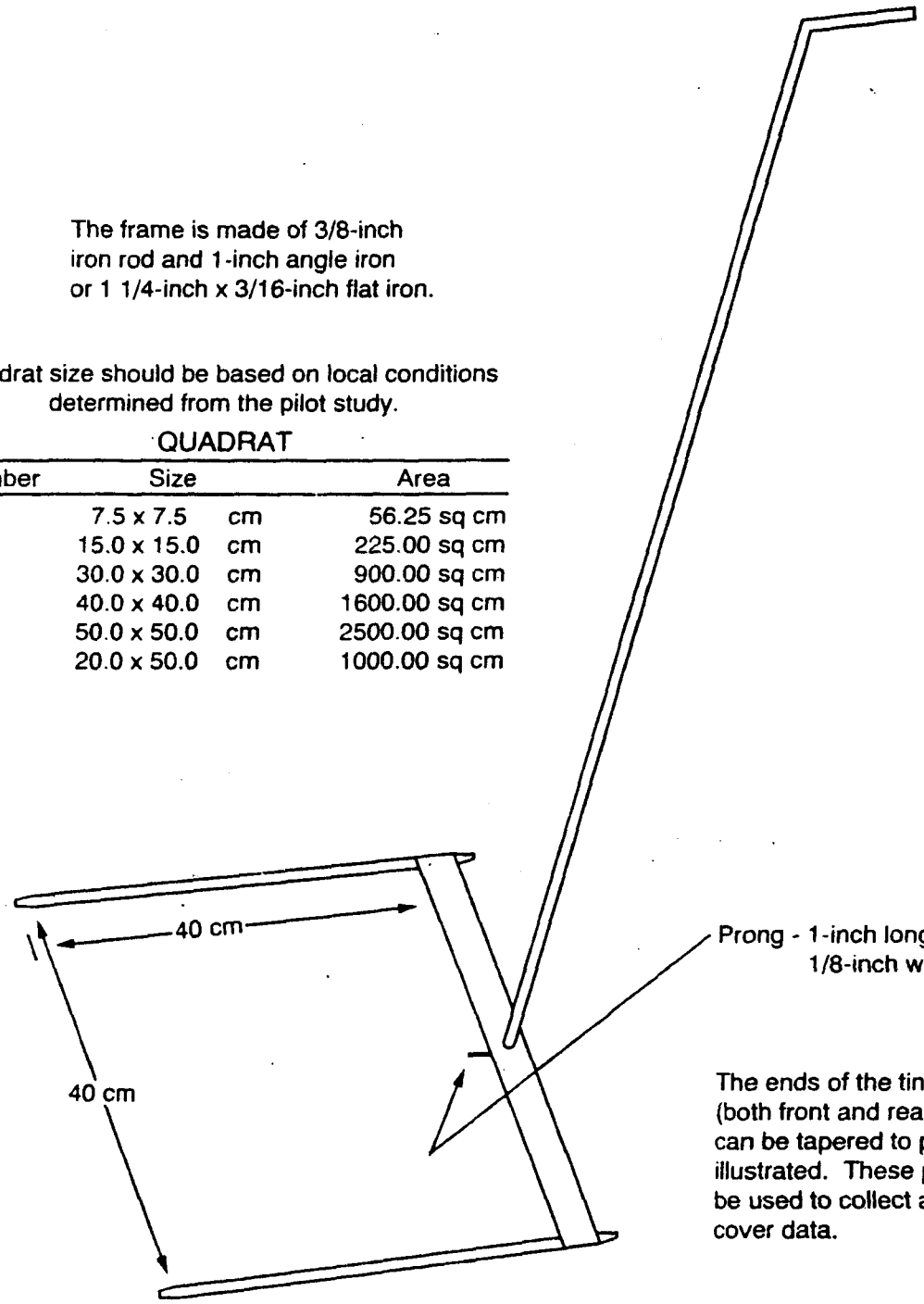
Frequency Frame

The frame is made of 3/8-inch iron rod and 1-inch angle iron or 1 1/4-inch x 3/16-inch flat iron.

Quadrat size should be based on local conditions determined from the pilot study.

QUADRAT

Number	Size		Area
1	7.5 x 7.5	cm	56.25 sq cm
2	15.0 x 15.0	cm	225.00 sq cm
3	30.0 x 30.0	cm	900.00 sq cm
4	40.0 x 40.0	cm	1600.00 sq cm
5	50.0 x 50.0	cm	2500.00 sq cm
6	20.0 x 50.0	cm	1000.00 sq cm



The ends of the tines (both front and rear) can be tapered to points as illustrated. These points can be used to collect additional cover data.

Illustration 6

ADDITIONAL INFORMATION-

Federal T&E species in the project area;

- Lesser long-nosed bat
- Gila chub
- Chiricahua leopard frog
- Quitobaquito pupfish
- Gila topminnow
- Canelo Hills ladies' tresses
- Huachuca water umbel

GUIDELINES TO BE USED:

Riparian areas will be assessed as to Proper Functioning Condition in accordance with guidelines in a 58 page booklet available at:
ftp://ftp.blm.gov/pub/nstc/techrefs/Final%20TR%201737-9.pdf

Vegetative transects will be assessed using guidelines outlined in: *Sampling Vegetation Attributes,* Interagency Technical Reference, 1996 (Applicable section is included with proposal)

Adopted by PAC on 11/14/2007

Long-Range Five Year Planning Document
2007 - 2011

Mission:
To meet the long-term water needs of the Sierra Vista Sub-watershed by achieving sustainable yield* of the regional aquifer by 2011 and beyond to: 1) preserve the San Pedro Riparian National Conservation Area (SPRNCA), and 2) ensure the long-term viability of Fort Huachuca.

** Sustainable yield is defined as the management of groundwater in a way that it can be maintained for an indefinite period of time, without causing unacceptable environmental, economic, or social consequences.)*

Plan Purpose:
Identify and prioritize projects, policies and programs to meet the Partnership's mission.

STRATEGIC GOALS

1. Verify, monitor and report on conditions within the Sierra Vista Sub-watershed using the best available science and adaptive management techniques.

2. Pursue Partnership Advisory Commission (PAC) approved water augmentation, recharge and reuse projects to restore and maintain adequate groundwater elevations at key locations by 2011.

3. Minimize groundwater use throughout the sub-watershed to restore and maintain adequate groundwater elevations at key locations by 2011.

4. Establish a conservation culture in the Sierra Vista Sub-watershed by providing tools; funding and outreach support to the engage the communities in conserving water.

OBJECTIVES

Strategic Goal #1 - ***Verify*, monitor and report on conditions within the SV Sub-watershed using the best available science and adaptive management techniques.**

Objective 1.1 - Secure funding at the necessary levels for USGS, ARS, and BLM.

Objective 1.2 - Support collaboration among science-based member agencies as they use the best available hydrologic modeling techniques, science and adaptive management techniques.

Objective 1.3 - Report annually to Congress (Section 321 Report), local and state leadership and residents.

Objective 1.4 - Seek opportunities to educate residents and leadership state-wide on key and emerging issues.

Strategic Goal #2 - **Pursue PAC approved water augmentation, recharge and reuse projects to restore and maintain adequate groundwater elevations at key locations by 2011.**

Objective 2.1 - Secure congressional authorization for BOR to proceed to Feasibility on the PAC approved alternatives.

Objective 2.2 - Secure first year funding for the feasibility Study: FY08 federal funding of $300,000 and state hard match of $300,000 from ADWR.

Objective 2.3 - Establish local authority to develop, own, operate and finance this infrastructure.

Objective 2.4 - Ensure that the Ground Water Model and Decision Support System are available to inform and support project development.

Objective 2.5 - Support and help member agencies secure funding for recharge and reuse projects, giving priority to projects in those locations that will yield the highest hydrological benefits based on best available science.

Objective 2.6 - Support member agency efforts to implement post development storm water capture projects.

Strategic Goal #3 - **Minimize groundwater use throughout the Sub-watershed to restore and maintain adequate groundwater elevations at key locations by 2011.**

Objective 3.1 - Identify high priority (key) locations on which to conserve groundwater resources. Finalize key locations maps.

Objective 3.2 - Identify funding sources to establish conservation easements to reduce groundwater pumping by lowering development density and/or retiring irrigated agriculture.

Objective 3.3 - Identify legal impediments that interfere with this goal.

Objective 3.4 - Develop legislative strategies to deal with legal impediments that can be addressed collaboratively by Partnership members.

Objective 3.5 - Develop seminar for local developers to address the issue of key locations. (TDR Work Group)

Objective 3.6 - Analyze water conservation ordinances to determine opportunities for more aggressive policies that PAC can champion for implementation.

Objective 3.7 - Develop informational tools and materials (including the website) that engage residents in a positive and active manner to improve local understanding of water issues and the need to conserve.

Strategic Goal #4 - **Establish a conservation culture in the Sierra Vista Sub-watershed by providing tools, funding and outreach support to the engage the communities in conserving water.**

Objective 4.1 - Determine the PAC approved messages for the coming period.

Objective 4.2 - Conduct an assessment of strengths and weaknesses to identify institutional and individual partners, and to prioritize focus areas for the coming year.

Objective 4.3 - Identify sources of funds and prioritize communications collaterals including website, brochures, PSA's, industry specific FAQs.

Objective 4.4 - Focus outreach efforts on highest priority areas and seek funding to accomplish this goal.

DEPARTMENT OF THE ARMY
US ARMY GARRISON
DIRECTORATE OF PUBLIC WORKS
3040 BUTLER ROAD
FORT HUACHUCA ARIZONA 85613-7010

REPLY TO
ATTENTION OF

IMWE-HUA-PWB (200-3)

3 June 2008

Arizona Water Protection Fund Commission
Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, Arizona 85012

Dear Commissioners:

The purpose of this letter is to express strong support for the Arizona Water Protection Fund proposal developed by the Coronado Resource Conservation and Development Council. We carefully reviewed the proposal to conserve riparian resources along the Babocomari River on two adjoining ranches in southeast Arizona. The proposed management activities to protect and monitor aquatic and adjacent terrestrial systems seem sound, well planned and highly beneficial for long-term management and conservation. The fencing would improve grazing management options and the detailed monitoring would provide information and insight into how the land responds. The strength of the proposed work is the connection of both grazing system and ecological systems and the broad attentiveness to monitoring aquatic, riparian woodland and terrestrial sacaton communities, along with geomorphic processes in the system, such as the stream channel and sediment movement. Linking the land uses with monitoring of components and functions should benefit those ranches and other ranches and land managers in the region.

Fort Huachuca is a neighbor to the Brophy Ranch along the Babocomari River, and we continue to cooperate with the ranch, agencies and conservation organizations to consummate conservation easements there. Any enhancements in management capability and monitoring results that increase long-term, economic viability of this and nearby ranches also will directly benefit Fort Huachuca's missions by maintaining open space and compatible land uses, such as ranching operations. The monitoring methods and design proposed for this project would be of clear interest to us, also, as we rehabilitate watersheds with riparian woodland and sacaton bottomlands that drain into the San Pedro River.

Therefore, we endorse funding and implementation of this project. If there area any questions, please contact me at 520-533-7083 or sheridan.stone@us.army.mil.

Sincerely,

H. Sheridan Stone

H. Sheridan Stone
Wildlife Biologist
Fort Huachuca Wildlife Section

Audubon

Appleton-Whittell Research Ranch
HC 1, Box 44; 366 Research Ranch Rd
Elgin, AZ 85611

May 20, 2008, 2008

Coronado RC & D Area, Inc.
656 North Bisbee Avenue
Willcox, AZ 85643

It is with great pleasure that I write this letter of support for your proposal to construct fence to protect a portion of the Babocomari River, to establish transects to monitor vegetation and stream channel characteristics on the Babocomari and some of its tributaries, and to hold education events to share techniques used. As described in the proposal, several transects are within the boundaries of the Research Ranch. This project is clearly consistent with the mission of the Research Ranch:

> *To formulate, test, and demonstrate methods to restore and safeguard the bioregion, and provide assistance to citizens and policy-makers in the protection and stewardship of our native ecosystems, natural resources and quality of life.*

The data and results of this project will enable us as land managers to better understand and protect the riparian corridors. In addition to the immediate benefits to the owners/managers of the Babocomari and Audubon ranches, this project will serve as a model for others who wish to protect desert rivers.

The Research Ranch shares a 3.5 mi boundary with the Babocomari Ranch, and several drainages cross the Research Ranch before flowing into the Babocomari River. Audubon manages the 8000 acre facility, which includes land owned by Audubon, the Bureau of Land Management, Swift Current Land and Cattle Company, the Nature Conservancy, the Research Ranch Foundation, and the U.S. Forest Service. The transects described in this proposal are located on property owned by Audubon, The Nature Conservancy, and Swift Current Land and Cattle Company. Contractual agreements between Audubon and each entity establish management responsibilities, which include supervision and support of research and educational projects such as described in your proposal. As per these agreements (copies enclosed), I, as Director of the Research Ranch, will grant access to Coronado RC&D and Robinett LLC to conduct research and education activities as specifically outlined in this proposal if funded.

If you have any questions, please don't hesitate to contact me.

Sincerely,

Linda Kennedy | JL

Linda Kennedy, Ph.D. Director
lkennedy@audubon.org
520 455 5522

Audubon ARIZONA

4250 East Camelback Road
Suite 310K
Phoenix, AZ 85018
Tel: 602-468-6470
Fax: 602-468-6480
http://az.audubon.org

Donna Matthews, Coordinator
Coronado RC&D Area
656 N. Bisbee Avenue
Willcox, AZ 85643
(donna.matthews@az.usda.gov)

May 22, 2008

RE: Babacomari River Watershed Ecological Monitoring and Riparian Protection Project

Dear Donna,

I am writing this letter in support of the Arizona Water Protection Fund grant application for the Babacomari watershed prepared by Dan Robinette that is being submitted by the Coronado Resource Conservation and Development Area. The project proposal will complete the River Pastures conservation project begun by the Babacomari Ranch to properly manage and protect river edge riparian resources on the Babacomari River.

More importantly, this proposal will institute badly needed ecological monitoring sites on the Babacomari Ranch and the Appleton Whittell Research Ranch of the National Audubon Society. As a member of the Upper San Pedro Partnership Advisory Committee I strongly endorse establishment of additional ecological monitoring sites that will assess the geomorphologic, vegetative and hydrologic conditions on the Babacomari watershed.

Current knowledge of site specific ecological functions limits the ability of scientists and policy makers to assess the effectiveness of water capture and retention conservation strategies in the upper watersheds of the San Pedro River. This project will further our understanding of important ecological parameters and the effects of fire and grazing management practices in one of the most important tributaries for the San Pedro River, the Babacomari River.

Having reliable and ultimately long-term monitoring data will greatly aid the Upper San Pedro Partnership members and other entities in developing successful strategies to attain sustainability of the San Pedro River watershed and assure the long-term ecological health of the San Pedro River.

Most sincerely in conservation,

Tice Supplee

Tice Supplee
Director of Bird Conservation
Audubon Arizona

Cc: Dan Robinette

The Nature Conservancy
SAVING THE LAST GREAT PLACES ON EARTH

The Nature Conservancy in Arizona
Ramsey Canyon Preserve
27 Ramsey Canyon Road
Hereford, Arizona 85615-9613

tel [520] 378-2785
fax [520] 378-1480
nature.org/arizona

May 8, 2008

Donna Matthews
Willcox RC&D Office
656 N. Bisbee Avenue
Willcox, AZ 85643

Dear Donna,

I am writing to support Dan Robinett's proposal to the Arizona Water Protection Fund for protection and monitoring of important Babocomari River watershed areas. The three tasks laid out in the proposal (fencing perennial stretches, setting up monitoring transects, and tracking for five years) are a meaningful and realistic scope of work.

From The Nature Conservancy's (TNC) perspective, this work is important for several reasons. The Babocomari River is part of the area we have defined as having the highest biodiversity values in Arizona—the Huachuca Mountains and Grasslands Complex. Intact aquatic and riparian systems are a huge contributor to those values. TNC has invested considerable effort into securing the easements on the Babacomari Ranch that target the main riparian corridor. TNC is also an upstream neighbor in the O'Donnell Creek watershed, and I am motivated by reading this proposal to expand the monitoring to our sections of the creek.

We view keeping ranchers in business as a key step towards the conservation of large landscapes. If we keep these large landscapes in good condition, they can provide habitat for native plants and animals as well as be productive for humans. The fencing and monitoring proposed under this project for the Babacomari and adjacent Research Ranch directly protect important habitats and feed information to decision making about future utilization.

Please contact me if you want to hear more!

Sincerely,

Brooke Gebow

Brooke Gebow

The Nature Conservancy
Southeastern Arizona Preserves Manager

27 Ramsey Canyon Road
Hereford, AZ 85615

Arizona Water Protection Fund Commission
Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, AZ 85012

May 21, 2008

To Whom It May Concern:

This letter serves to support the activities and grant access to our property in order for the Coronado RC&D (as fiscal agent) and Robinette Rangeland Resources to carry out the tasks associated with the riparian monitoring grant we are seeking from you.

The Babacomari Ranch has been working closely with Dan Robinette and the NRCS since 1995 to establish range management practices that are supported by sound scientific range monitoring in order to maintain and improve the health of our rangelands and water resources. We operate a stocker cattle operation in Santa Cruz and Cochise counties Arizona on approximately 29,000 deeded acres running 1,500 to 2,000 head of cattle.

In the past 2 years, we have noted the need for a more specific and refined approach to monitoring riparian areas as compared to uplands on the ranch. Dan Robinette, through his ongoing efforts to assist the ranch in monitoring activities has recommended an enhanced approach to riparian monitoring that we are seeking to fulfill via this grant.

Coronado RC&D and Mr. Robinette have our full support to assist us in meeting our objectives to become the best stewards we can for the property under our care and management.

Sincerely,

Ben Brophy, Managing Member – Babacomari Ranch Co.

USDA NRCS Natural Resources Conservation Service

Tucson Field Office
3241 N. Romero Rd.
Tucson, AZ. 85705

Date: 5/20/2008

Arizona Water Protection Fund Commission
Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, AZ 85012

To Whom It May Concern:

This letter is in reference to my support of the grant application for Babocomari River Riparian Protection Project. This joint effort by the Babocomari Ranch and the Audubon Research Ranch deserves special consideration for funding. The Natural Resources Conservation Service has maintained positive, long-term working relationships with both ranches for many years. We feel that this joint project will provide benefits to the entire watershed through the research that will be generated.

Both ranches have been active in numerous coordinated planning efforts with which the NRCS has been a partner. Although one ranch is a working cattle ranch and the other is not grazed, both have continually looked for ways to better manage their rangelands for livestock, wildlife and aquatic species. Both ranches have participated in NRCS Conservation Programs through our Wildlife Habitat Improvement Program by installing or improving water for various species including threatened and endangered species. Both ranches have also been working diligently to enhance the uplands and move them back towards historic species. Babocomari Ranch has completed or planned brush management on over 3300 acres while the Research Ranch has treated invasive grasses and done countless plantings of native grass throughout the uplands.

The Coronado Resource Conservation and Development Office in Willcox has been a project coordinator for many types of grants that we have been involved with over the past 20 years. They have been exemplary in all aspects of project and fund management. Robinett Rangeland Resources will conduct the research. Mr. Robinett not only worked with NRCS for over 30 years, but, is noted as one of the premier rangeland scientists in Arizona and the entire western United States. He is unbiased and thorough in his studies.

I am very pleased to support this project and hope that you will continue to fund efforts such as the Babocomari River Riparian Protection Project.

Sincerely,

Kristen Egen
District Conservationist
520-292-2999 ext. 105

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Tucson Field Office
12661 E. Broadway Blvd
Tucson, Arizona 85748
www.blm.gov/az/

TAKE PRIDE IN AMERICA

June 4, 2008

In Reply Refer To:
1040 (AZ-420)

Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, Arizona 85012

Dear Sir or Madam:

I have reviewed the study proposal submitted by Dan Robinett. The proposal will provide invaluable information about the health of two riparian ecosystems in the upper San Pedro watershed. The Bureau of Land Management possesses land in O'Donnell Creek and a conservation easement on the Babocomari River. Grazing and its effects on riparian function have been studied elsewhere, but rarely for multiple years or in the context of adaptive grazing management.

Studying the natural dynamics and function of a complex and exceptionally intact riparian/aquatic ecosystems is a rare opportunity. I've known Dan Robinett for over a decade and he is an outstanding plant ecologist with a long and distinguished career with the Natural Resource Conservation Service. His work has been published in numerous journals, and he is widely respected among his peers in rangeland management.

I hope you will consider his proposal and take the opportunity to apply Mr. Robinett's scientific skills to the study and understanding the riparian ecosystems in the context of grazing management that aspires to help land managers maintain a high level of riparian integrity and function.

Sincerely,

Jeffrey R. Simms
Fishery Biologist
Tucson Field Office

COOPERATIVE AGREEMENT

between the

Bureau of Land Management

and the

National Audubon Society

This agreement is designed to provide for cooperative management between the Bureau of Land Management, and the National Audubon Society for the management of public lands within the Appleton-Whittell Biological Research Sanctuary (The Research Ranch).

II. AUTHORITY

The Federal Land Policy and Management Act of 1976 (Public Law 94-579) provides for cooperative agreements for the management of public lands.

III. DEFINITIONS

A. BLM means the Bureau of Land Management, an agency of the United States Department of the Interior.

B. NAS means the National Audubon Society, a national conservation organization.

C. Public lands means Federally-owned lands administered by BLM.

IV. BACKGROUND

Research and conservation on The Research Ranch goes back to the Appleton family and their desire to protect the natural aspects of the area. In 1969 the Appletons stopped livestock grazing and began encouraging biological research. Active cooperation from the Forest Service and the Arizona State Land Department has resulted in the current sanctuary being established to serve as a place for biological investigations. In 1980 the National Audubon Society assumed management of the sanctuary through funds from the Whittell Trust. The Research Ranch Foundation, former manager, continues in an advisory role. In 1986 the Bureau of Land Management became involved in The Research Ranch when the agency acquired the state land in the sanctuary. This acquisition came about due to BLM's greater flexibility and authority in resource management to provide for long-term research than that of the State Land Department and their sole goal of revenue production.

A biological research station, The Research Ranch has been primarily used for ecological studies. With the cessation of grazing in 1969, biologists began to study and describe the land and its life forms without the impacts of grazing. An exclosure of this size offers an opportunity for diversity of plant and animal life to be studied. The increase in diversity thus far has been significant and the long-term impacts of such an exclosure needs continued long-range study. Two Federally-endangered species occur in the sanctuary and two others are under consideration for such status. In addition, the sanctuary hosts over 300 species of plants, 225 birds, 103 butterflies and 74 mammals. Since 1980, over 40 scientific papers have documented past research. Over 20 research projects are currently underway.

C. OBJECTIVES

The BLM and NAS are in agreement on the following objectives relating to the management of public lands in the Appleton-Whittell Biological Research Sanctuary:

- the continuation of on-going research
- the encouragement of future research
- the derivation of mutual benefits from the research
- the protection of the land and its ecological communities from disturbance

VI. CONDITIONS OF AGREEMENT

A. The Bureau of Land Management will:

1. Furnish the public land for research projects authorized by the National Audubon Society.

2. Develop a Resource Management Plan (RMP) in coordination with NAS within two years after the signing of this agreement. The RMP will determine actions permissible and those not allowed on the lands and will follow the BLM policy and regulations specified for resource management planning. Following completion of the RMP, this agreement may need to be modified for consistency.

3. Proceed through the planning process to designate the public land as a research natural area (RNA) or other designation consistent with the objectives of this agreement.

4. Close all roads and trails to vehicle traffic except as needed for administration of research projects and property management. BLM will provide appropriate off-road vehicle signs to NAS.

5. Provide law enforcement as necessary to carry out the objectives of this agreement.

6. Provide fencing material as appropriate to construct exterior boundary fences along the public land boundaries.

7. To ensure successful continuation of the research program, grazing will not be permitted.

8. Restrict mineral exploration and development.

B. The National Audubon Society will:

1. Be responsible for day-to-day management of the area within the guidelines provided by BLM.

2. Maintain personnel on the area on a year-round basis.

3. Maintain all facilities currently on public lands.

4. Direct and coordinate research projects authorized on the public lands.

5. Provide signs necessary to mark the private property and control public use of the area.

6. Furnish BLM with copies of research papers completed on the public lands.

7. Credit BLM in published research papers where public lands are used in the research.

C. BLM and NAS will:

1. Jointly develop and install major signs identifying the Appleton-Whittell Biological Research Sanctuary.

2. Jointly coordinate land management practices with the Coronado National Forest.

VII. COORDINATION

Formal and informal meetings between the designees of BLM and NAS shall be held as necessary or desirable to exchange information, coordinate activities and facilitate achieving the purpose and objectives of this agreement. As a minimum, an annual meeting will be held to discuss current and proposed research and any management problems requiring cooperative efforts.

VIII. EFFECTIVE DATE, TERMINATION AND AMENDMENTS

This cooperative agreement shall become effective when signed by the President of the National Audubon Society and the Arizona State Director, Bureau of Land Management, and shall remain in effect until terminated by mutual agreement. This agreement may be terminated by either party after giving 90 day notice to the other party. Amendments or modifications to this agreement can be addressed at any time and must be approved by the designated representatives of BLM and NAS. The development and implementation of this cooperative agreement is contingent upon the availability of funding and personnel.

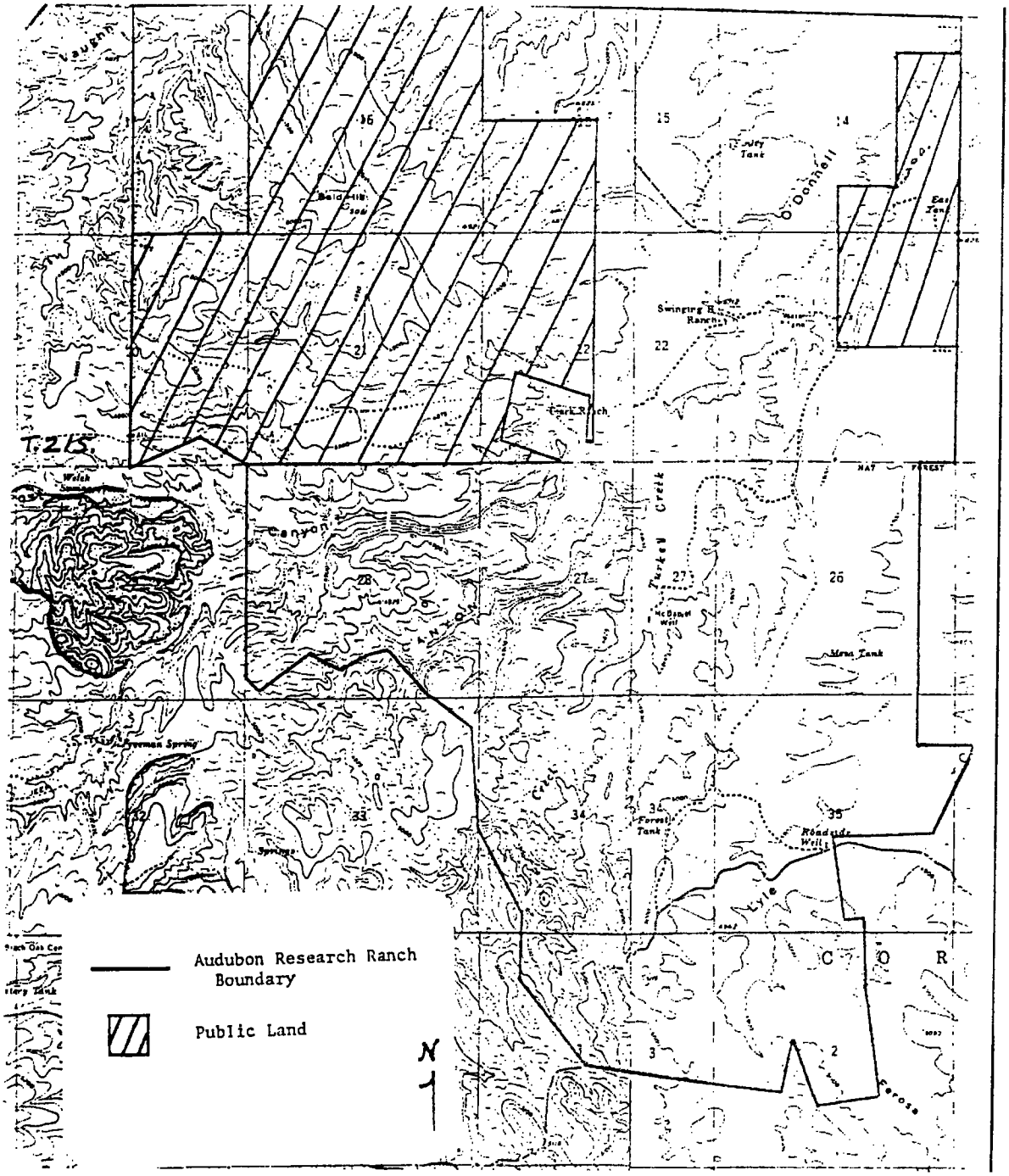
We hereby agree to the terms and conditions of this cooperative management agreement.

State Director
Bureau of Land Management

Aug 8, 1986
Date

President
National Audubon Society

Aug 8, 1986
Date


Audubon Research Ranch Boundary
Public Land
N
T.21S.
Canyon
Turkey Creek
Swinging H Ranch
Mesa Tank
Forest Tank
Roadside Well
Lyle
Ferosa
C O R
NAT FOREST
Bald Hill
Freeman Spring
Springs
Clark Ranch
O'Donnell
Vaughn
Welch
16
15
14
21
22
28
27
26
33
34
35
3
2

STATE OF ARIZONA

DEED OF RECONVEYANCE

96-93821

For and in consideration of the granting of certain lands as authorized by the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1201 et. seq.) THE STATE OF ARIZONA does herewith remise, release, quitclaim, grant, convey and relinquish to the UNITED STATES OF AMERICA its interest in the lands described as follows:

TWP.	RGE.	SEC.	SUBDIVISION	ACRES
21S	19E	14	SENE; NESE; S2SE	160.00
		15	SW	160.00
		16	All	640.00
		20	E2	320.00
		21	All	640.00
		22	Lots 1-3; NW	262.44
		23	NE	160.00

The above described parcels contain a total of 2,342.44 acres, more or less.

Subject to existing reservations, easements, or rights-of-way heretofore legally obtained and now in full force and effect.

IN WITNESS WHEREOF, I, Bruce Babbitt, Governor of the State of Arizona, have caused this DEED OF RECONVEYANCE to be executed and the GREAT SEAL of the State of Arizona to be attached hereto this 31st day of July, 1986.

GOVERNOR OF THE STATE OF ARIZONA

SECRETARY OF STATE

CERTIFICATE OF NONENCUMBRANCE

I, Robert K. Lane, State Land Commissioner, of the Arizona State Land Department do hereby certify that I am the official custodian of the records of the State of Arizona pertaining to the care and disposal of School, Grant and State lands in said State in accordance with Sections 37-102 and 37-132, Arizona Revised Statutes and that I have caused an examination of the records for which I am custodian with reference to instruments affecting the title of the State of Arizona to the land described in:

Deed of Reconveyance 96-93821

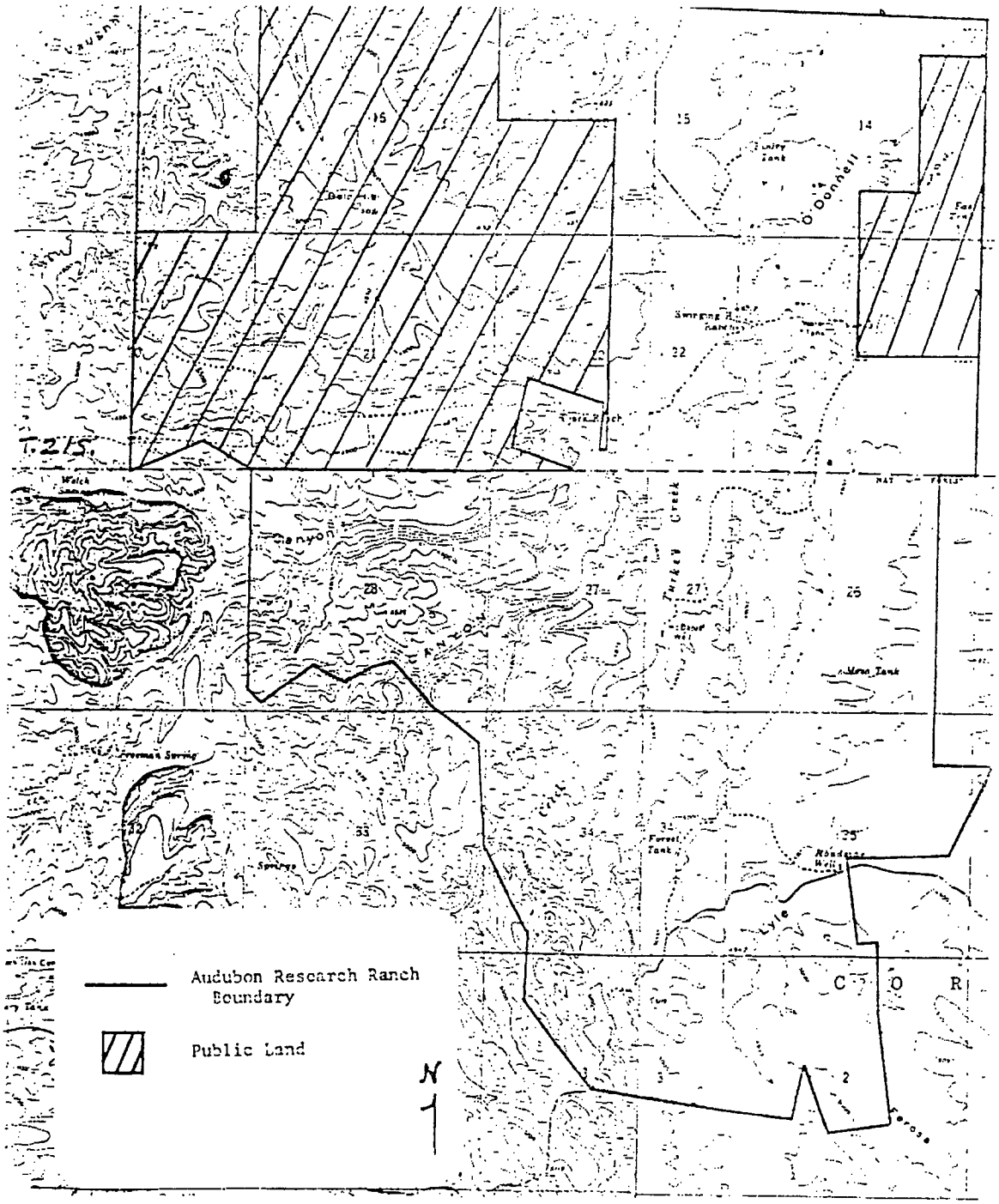
and that no instrument purporting to convey or in any way encumber the title of the State of Arizona to said land, or any portion thereof, nor any lien for taxes, costs, interest or judgements is on file or of record in the public record system of the Arizona State Land Department except for the stated encumbrances:

Right of Way 18-93087

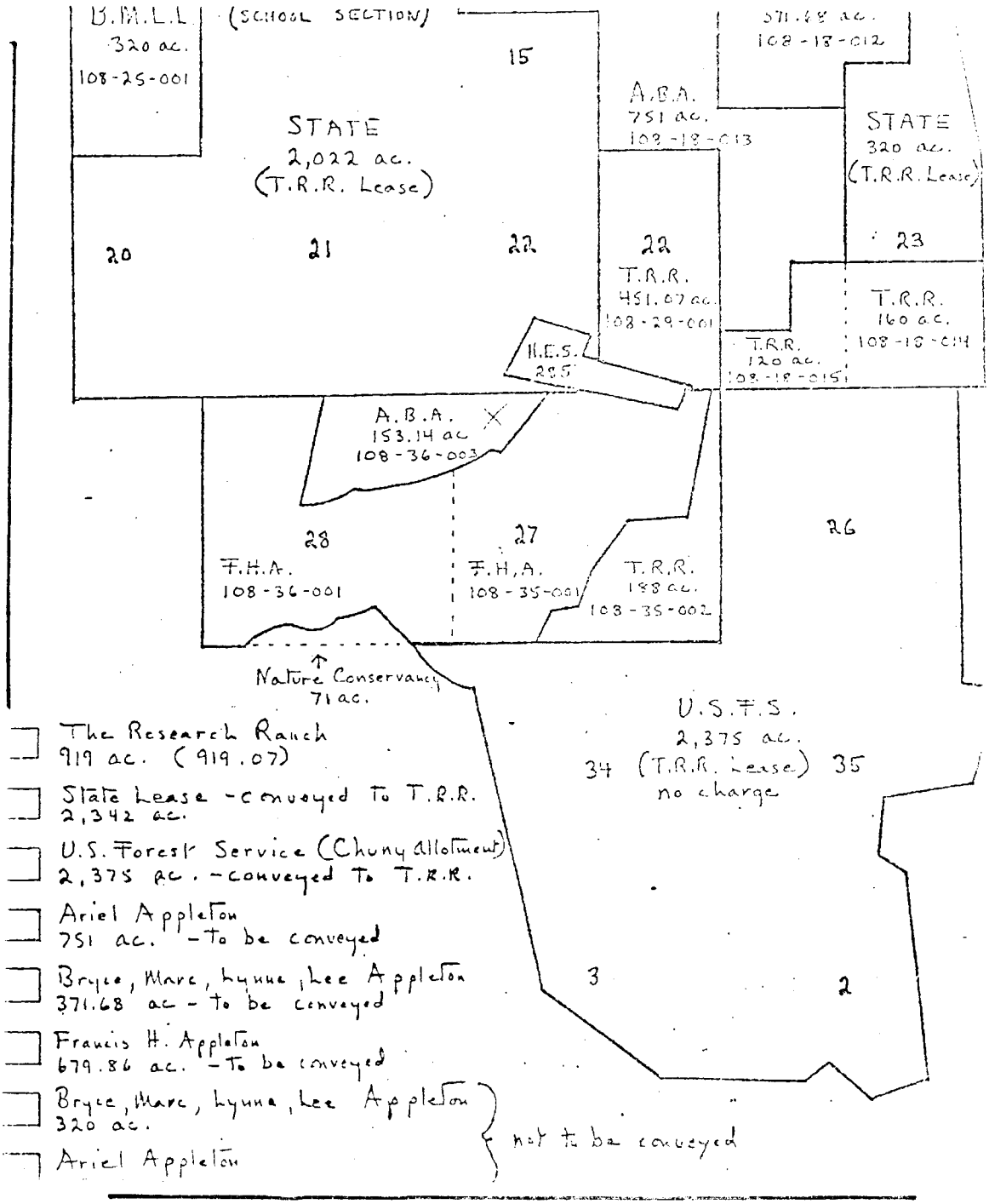
Witness my hand and the official seal of the Arizona State Land Department this 31st day of July, 1986.

Gerald L. Smith

ROBERT K. LANE
STATE LAND COMMISSIONER

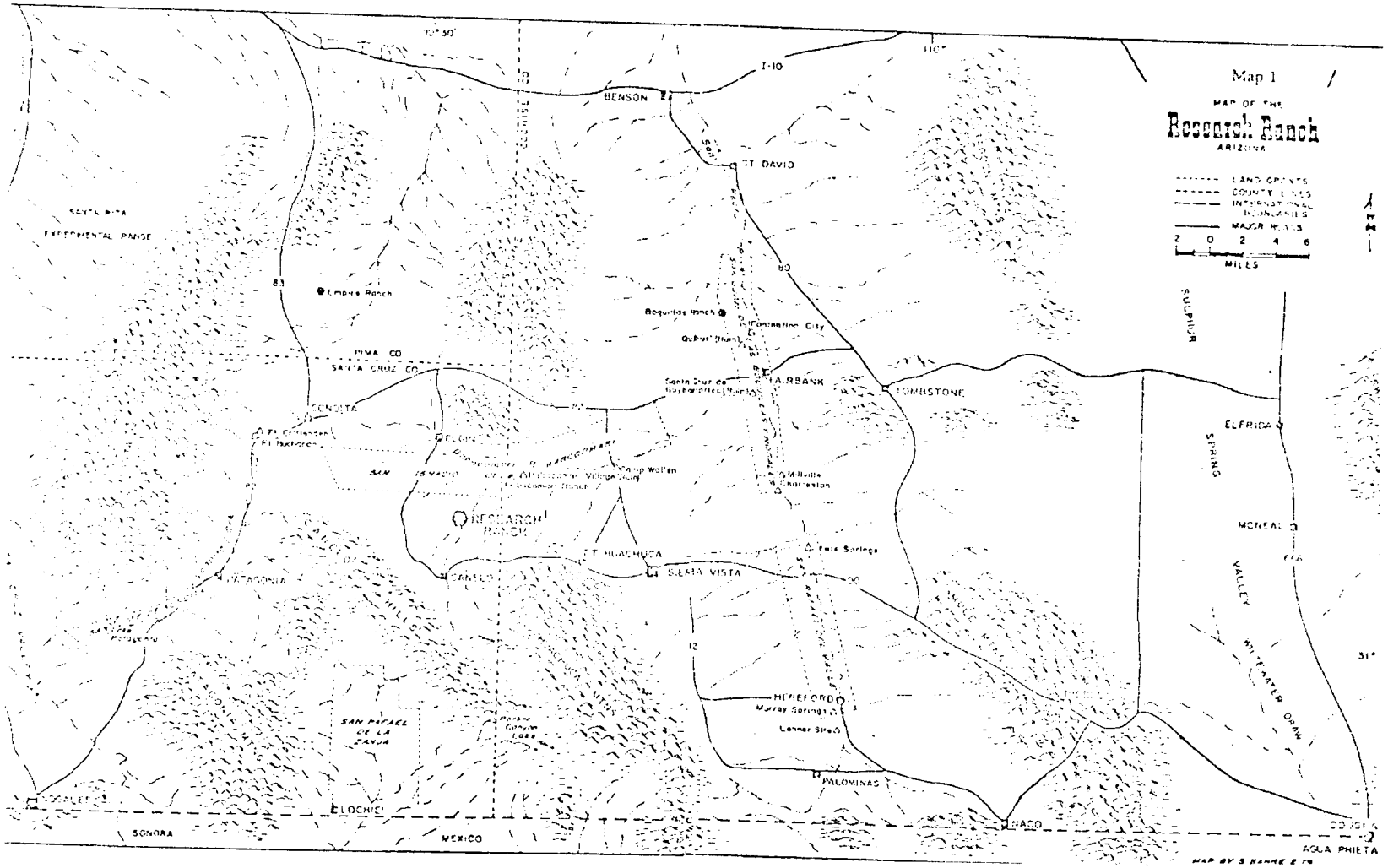


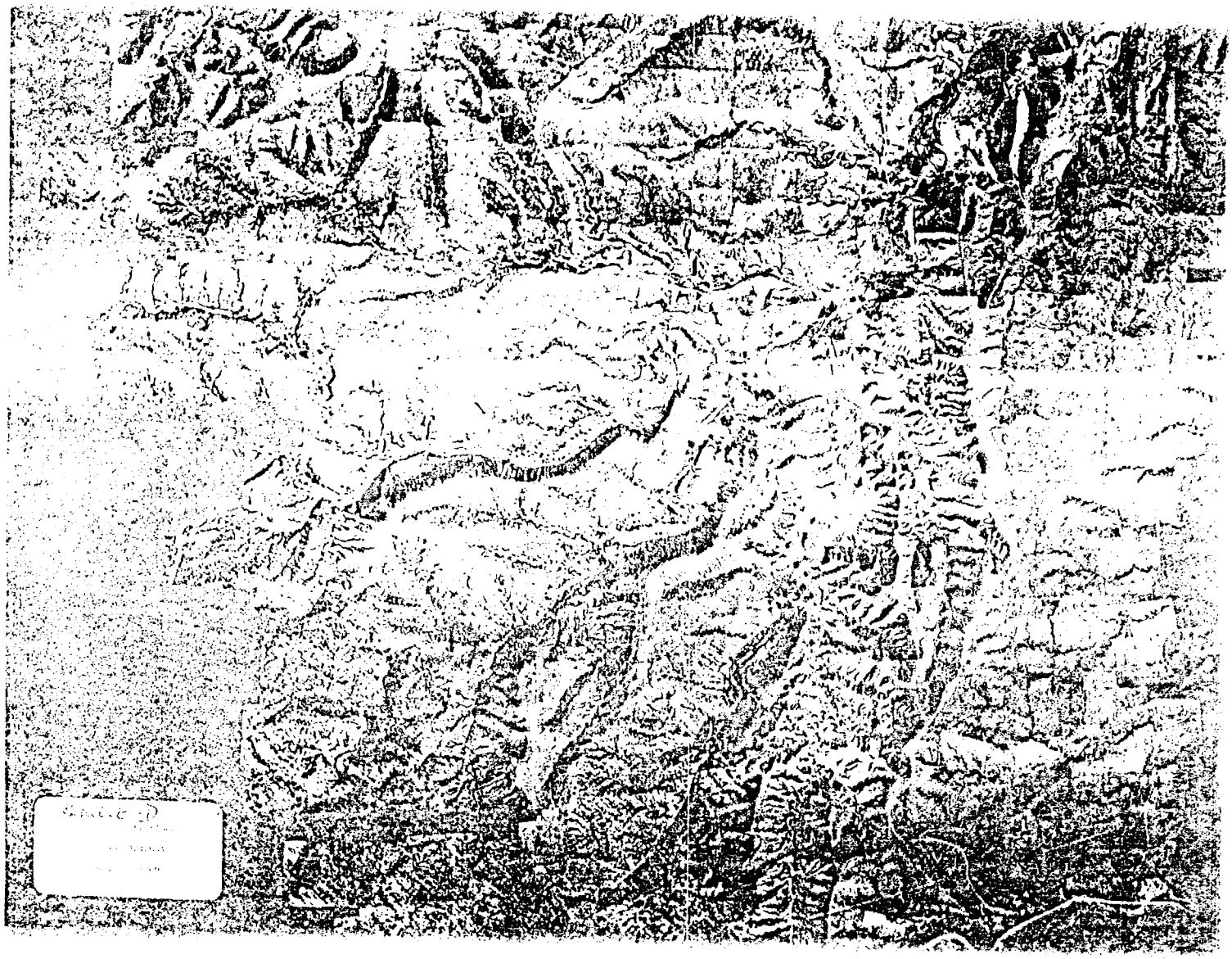
Audubon Research Ranch Boundary
Public Land
N
T.21S.
Canyon
Turkey Creek
O'Donnell
Lyle
C O R



- The Research Ranch
  919 ac. (919.07)
- State Lease - conveyed to T.R.R.
  2,342 ac.
- U.S. Forest Service (Chuny allotment)
  2,375 ac. - conveyed to T.R.R.
- Ariel Appleton
  751 ac. - to be conveyed
- Bryce, Marc, Lynne, Lee Appleton
  371.68 ac - to be conveyed
- Francis H. Appleton
  679.86 ac. - to be conveyed
- Bryce, Marc, Lynne, Lee Appleton
  320 ac.
- Ariel Appleton

} not to be conveyed


Map 1
MAP OF THE
Research Ranch
ARIZONA
LAND GRANTS
COUNTY LINES
INTERNATIONAL BOUNDARIES
MAJOR ROADS
2 0 2 4 6
MILES
I-10
BENSON
ST DAVID
SANTA RITA EXPERIMENTAL RANGE
Empire Ranch
Boquillas Ranch
Contention City
PIMA CO
SANTA CRUZ CO
FAIRBANK
TOMBSTONE
SONOITA
ELGIN
RESEARCH RANCH
FT HUACHUCA
SIERRA VISTA
PATAGONIA
HEREFORD
Murray Springs
Lehner Site
PALOMINAS
NACO
LOCHISE
SONORA
MEXICO
SULPHUR SPRING VALLEY
ELFRIDA
MONEAL
WHITEWATER DRAW
AGUA PRIETA
MAP BY S BAHRE 2 76



INTERIM MANAGEMENT AGREEMENT
APPLETON FAMILY LANDS WITHIN THE APPLETON-WHITTELL RESEARCH RANCH OF THE NATIONAL AUDUBON SOCIETY
SANTA CRUZ COUNTY, ARIZONA

This Interim Management Agreement ("**Agreement**") is duly made and entered into as of this ___ day of December, 2007 by and between Swift Current Land & Cattle LLC, an Arizona limited liability company whose address is 102 Magma Heights Road, Superior, AZ 85273 ("**Swift**"), and National Audubon Society, Inc., a New York not-for profit corporation, whose address is 700 Broadway, New York, NY 10003 (the "**Society**").

WHEREAS, Swift has acquired certain real property located in Santa Cruz County, Arizona, as more particularly described on Exhibit A attached hereto and incorporated herein (the "**Property**") from members of the Appleton family;

WHEREAS, the Property is located within and intermingled with other lands owned by the United States and the Society within the area known as the Appleton-Whittell Research Ranch of the National Audubon Society (the "**Ranch**");

WHEREAS, Swift has acquired the Property for purpose of conveying it to the United States through either a legislative land exchange, administrative land exchange, donation or direct sale to the United States, the Society or another qualified land conservation organization (the "**Conveyance**");

WHEREAS, prior to the Conveyance, Swift desires to have the Property managed to promote non-disruptive habitat research and conservation; and,

WHEREAS, the Society currently manages the lands within and adjoining the Ranch in accordance with agreements with the Research Ranch Foundation, the United States Department of the Interior, and the Regional Forester Southwestern Region and the Director, Rocky Mountain Forest and Range Experiment Station, and The Nature Conservancy.

NOW THEREFORE Swift and the Society do mutually agree to cooperate in the management and protection of the Property as set forth below.

A. **Swift's Rights and Duties.**

1. In consideration of the qualifications of the Society staff and the need for the Property to be managed in accordance with the pertinent management and research objectives and practices as contained in the Agreement between the Research Ranch Foundation and the Society dated February 2, 1980 (the "**RRF Agreement**"), Swift agrees that the Society shall manage the Property and Swift shall pay the Society an annual management fee as set forth in Section E below.

2. Swift will permit the Society to have sufficient pedestrian and vehicular access to the Property for the purposes of carrying out the duties set forth in Section B below.

3. Swift shall meet with the Society at least every six months to discuss issues that

may arise regarding management of the Property in accordance with this Agreement and to ensure that the management objectives are being met. In addition, Swift will use reasonable efforts to meet with the Society to discuss management objectives and actions upon request at a mutually convenient time and location.

4. Swift reserves the right for itself, its Affiliates and each of their representatives, consultants and designees to have full access to the Property at all times during the term of this Agreement, provided that Swift will notify the Society in advance of any such access to the Property and will use reasonable efforts not to disrupt or compromise any research projects on the Property and will coordinate such visits with the Society.

5. Swift acknowledges the importance of the Property for research, and Swift agrees that research projects approved by the Society in accordance with its guidelines (described in Section B.5 below) may be conducted on the Property, subject in each case to the occurrence of the Conveyance and it is understood that all rights of the Society shall terminate absolutely upon the Conveyance. Further, if the Property is conveyed other than pursuant to the Conveyance, Swift agrees to use reasonable efforts to ensure that ongoing research projects be allowed to continue through conclusion, so long as the same does not affect the valuation or sale of the Property.

B. The Society's Rights and Duties.

1. For the term of this Agreement, the Society will manage the Property in accordance with the pertinent management and research objectives and practices as contained in the RRF Agreement and as the parties may agree from time to time.

2. The Society is also authorized, though not required, to propose management actions that are consistent with the pertinent management objectives and practices as contained in the RRF Agreement. Before undertaking such activities, the Society will consult with Swift and the Parties shall reach agreement on management action design and payment of costs and the identification and responsibility for any governmental approvals.

3. The Society will provide a general management presence, including patrolling the Property on a regular basis.

4. Access to the Property by the public shall be restricted. The Society may post the Property or any portion thereof pursuant to Arizona law and may control access. The Society may conduct field trips on the Property for students, potential donors and volunteers.

5. Society will evaluate science and research proposals/projects in accordance with the current "Application to Conduct Research" and item III of the RRF Agreement. The Society will report annually on the status of ongoing science and research and will submit any changes or amendments to the "Application to Conduct Research" to Swift prior to implementation of those changes.

6. The Society will meet with Swift at least every six months and provide Swift with written and/or verbal reports summarizing management activities. In addition, the Society will meet with Swift to discuss management objectives and actions upon request at a mutually

convenient time and location.

C. **Term of Agreement.** This Agreement shall become effective as of the effective date first set forth above. Unless earlier terminated under Section F4 below, it shall remain in effect for an initial three year period. Thereafter, it shall be automatically renewed each year thereafter for an additional year, subject always to the termination provisions of Section F4. At any time, either party may request modification of this Agreement, but any such changes must be mutually agreed upon in writing to be binding on either or both Parties.

D. **Notices.** All notices and communications required or permitted under this Agreement shall be in writing and shall be addressed to the following addresses, or such other address as a party may provide from time to time:

1. If to Swift:

Swift Current Land & Cattle Co.
c/o Resolution Copper Mining LLC
102 Magma Heights
Superior, AZ 85273
Telephone: (520) 689-3305
Telecopier: (520) 689-2471
Attn: Chief Financial Officer

2. If to the Society:

National Audubon Society
Appleton-Whittell Research Ranch
H.C. 1, Box 44
Elgin, AZ 85611
Telephone: (520) 455 5522
Fax: (520) 455 9201
Attn: Director

E. **Payments.** Swift will pay the Society an annual management fee of $1000.00 promptly after execution by both parties and on each anniversary thereafter during the term of this Agreement. In addition, on a quarterly basis, Swift will reimburse the Society for the reasonable and necessary costs for work performed for additional management projects that have previously been approved by Swift in accordance with a program and budget proposed by the Society and accepted in writing by Swift, after receipt and approval of a invoice from the Society. All reimbursable expenditures must be accompanied by receipts and in accordance with the standards and requirements of Swift as advised from time to time.

F. **General Provisions.**

1. Insurance. At all times during the term of this Agreement, the Society shall maintain commercially reasonable liability insurance, workers compensation insurance as required by Arizona law, and automobile liability insurance and shall provide a certificate of such insurance to Swift. The liability insurance shall provide Swift with at least thirty (30) days prior notice of any cancellation or change in material terms and Swift shall be named as an additional insured under such liability and automobile policies, as its interests shall appear and a waiver of subrogation in favor of Swift. Swift shall not be obligated to pay any premiums for the

same.

2. Negation of Duties, Indemnifications. Swift has not undertaken any risk assessment of the Property and the Society expressly acknowledges that Swift does not have a duty to make the same safe. SWIFT IS PROVIDING THE PROPERTY 'AS IS, WHERE IS' WITHOUT ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. The Society will expressly assume all risks of injury and death to any of its personnel or invitees arising from the existing condition of the Property. In addition, each Party (the "**Indemnifying Party**") hereby releases, indemnifies, and agrees to hold harmless the other Party, its Affiliates and their officers, employees, agents, and representatives, from and against any and all liabilities, actions, damages, costs (including, without limitation, costs of suit and reasonable attorneys fees) arising under or out of the acts or omissions of the Indemnifying Party relating to its rights and responsibilities under this Agreement. This section shall survive expiration or earlier termination of this Agreement.

3. Independent Contractor Relationship. The Parties acknowledge that in entering into this Agreement the Society is acting as an independent contractor and neither the Society nor its employees shall be considered to be employees of Swift or any of its Affiliates.

4. Termination. Either party may cancel this Agreement at any time upon 90 days prior written notice. In addition, this Agreement shall also terminate automatically immediately prior to the Conveyance as described above. In the event of a Conveyance, Swift will reimburse the Society for the costs incurred through the date of termination for all previously approved management activities.

5. Compliance with Laws. Each Party shall be responsible for complying with all applicable laws, including environmental laws, pertaining to its obligations and work performed under this Agreement.

6. Governing Law. This Agreement shall be governed by the laws of the State of Arizona, excluding any conflict of law principles.

IN WITNESS THEREOF, each Party hereto has caused this Agreement to be executed by its duly authorized officer on the day and year set forth opposite their signature.

Swift Current Land & Cattle	**National Audubon Society, Inc.**
By John [illegible]	By Bob Percassepe
Title: PRESIDENT	Title: COO
Date: 14 January 2008	Date: 12/19/07

Memorandum of Understanding
Between
The Nature Conservancy (TNC) and the National Audubon Society's Appleton Whittell Research Ranch (ARR)
For Appropriate Care and Use of the Approximately 75-acre TNC parcel adjoining ARR

In an effort to maintain the most environmentally friendly landscape possible, TNC and ARR agree to the following guidelines, concerning the 75 acre TNC parcel:

1. ARR has prepared a map of ARR that shows ownership of the 75-acre parcel rests with TNC (See Exhibit A -- Yellow). ARR will list TNC as a cooperator/partner, along with the Bureau of Land Management and the U.S. Forest Service.

2. ARR will by 4/01/05, rebuild the entire southern and western fence lines of the TNC parcel (See Exhibit A -- Purple), upgrading these to wildlife-friendly standards, at no cost to TNC.

3. ARR will continue to maintain the southern and western fence lines, and to post these fences against hunters and other trespassers, at no cost to TNC. This assumes ARR will post signs; otherwise TNC will provide the signs that show ownership (TNC) and management (ARR).

4. There will be no boundary fence wire between the TNC parcel and ARR, in an effort to provide the most fence-free landscape for wildlife. ARR will maintain enough posts to verify the actual ownership boundary.

5. ARR will include in its plant species list, any additional species within the parcel which have not yet been found on ARR's 8,000 acres. ARR will maintain its species plant list on its web site. Actual GPS locations of plants will not be available on the website, but will be maintained and available upon request by TNC and by approved researchers.

6. ARR staff will review all science proposals that include the TNC parcel, and will evaluate those proposals using the standards outlined in ARR's science application guidelines and with respect to TNC's "Removal of Plants and Animals" policy (Exhibit B). ARR will be responsible for ensuring compliance with TNC's Removal of Plants and Animals policy. ARR will require that all researchers whose project includes portions of this parcel contact TNC, provide TNC with copies of proposals and publications, and acknowledge TNC in any reports or publications. If ARR changes their application guidelines, they must provide TNC with a copy of the new guidelines.

7. ARR will report to TNC any unusual issues on the TNC parcel.

8. In the case of wildfire, ARR and/or TNC will work with the U.S. Forest Service, Bureau of Land Management, or others to effect environmentally friendly fire management. Any prescribed burn plan will be developed jointly.

9. TNC will request and receive verbal or written permission from ARR prior to touring the TNC parcel, so as not to disrupt any ARR research activity.

10. This MOU will expire five (5) years from the date both parties have executed this Agreement. This MOU may also be terminated by either party with 60 days notice. TNC retains the ability to

assign this MOU to a subsequent buyer of this parcel.

11. If TNC issues notice of termination, then TNC would pay ARR at the current rate to construct a fence on the north side of the TNC property to separate the parties respective lands (See Exhibit A – Red) to standards approved by ARR. Construction must be completed before the date of termination.

12. In the event of agreement termination by either party, ARR would assume ownership and maintenance responsibility for the northern fence line, and TNC would assume ownership and maintenance responsibility for the southern and western fence line.

13. Each of the parties agrees to indemnify, release, and hold the other harmless against any injury to persons or damage to property, real or personal, arising out of the negligence of the indemnifying party, that party's officers, employees, contractors, agents, permittees and invitees. Each party also agrees to maintain adequate liability insurance with respect to that party's own activities on the TNC property, and each agrees to add the other party as a named insured on such insurance policies. Prior to allowing researchers to access the TNC property, ARR agrees to secure a liability release and waiver from such invitees, on a form to be provided by TNC.

Agreed:

Monique M. Quinn
~~FBD~~ Monique M. Quinn
~~Director of Real Estate~~ CFO
National Audubon Society

Date: 11/9/04

Thomas P. Collazo
Director of Conservation
The Nature Conservancy
Arizona Chapter
Date: 8/31/04

Exhibit A : Map
Exhibit B: TNC Removal of Plants & Animals Policy

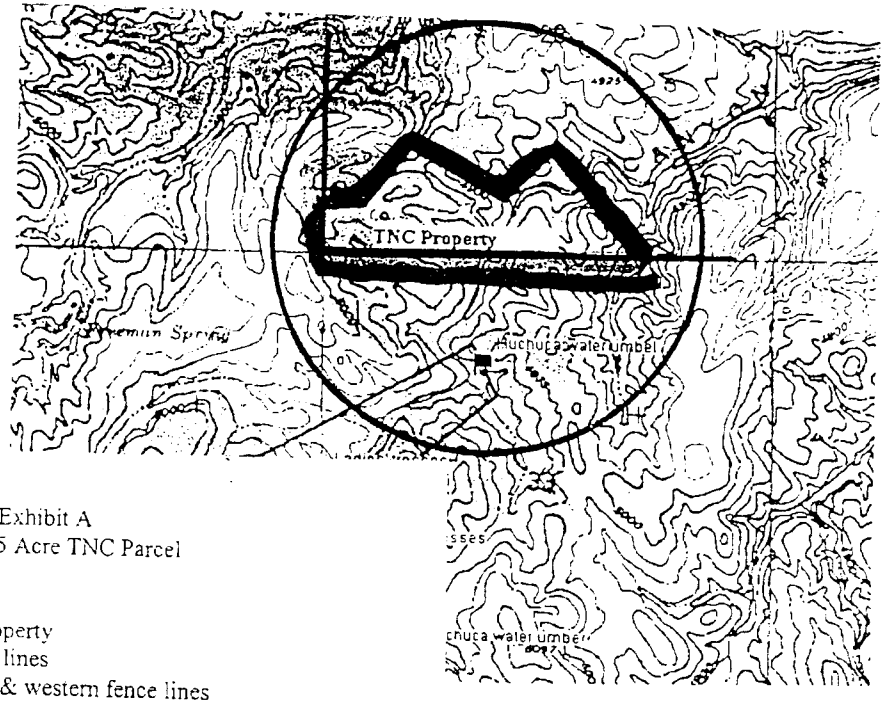


Exhibit A
Map of 75 Acre TNC Parcel

Yellow: TNC Property
Red: North fence lines
Purple: Southern & western fence lines

udubon Research Ranch

Ownership

ARR boundary

Road

Trail

BLM

FS

NAS

TRRF

Doornbas property

Appleton property

Appleton-Whittell Research Ranch
National Audubon Society
Santa Cruz County
Elgin, AZ 85611
520.455.5522
researchranch@audubon.org

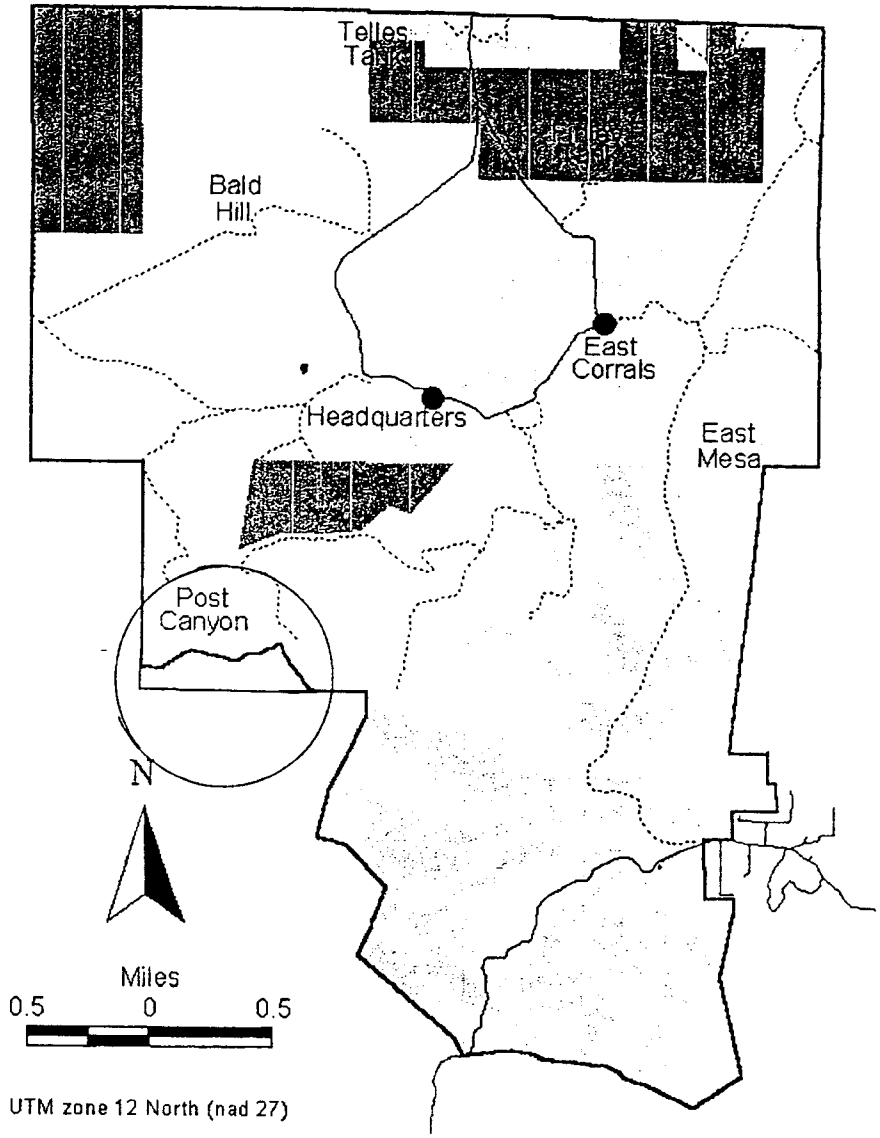


Exhibit B

Removal of Plants and Animals

POLICY:

Hunting, fishing, collection, or other actions involving removal or killing of plants or animals on lands owned or managed by the Conservancy is permitted when 1) these actions are necessary to protect the ecological integrity of native ecosystems or sensitive native species; or 2) the removal is important to the human community interacting with these lands, the continuation of use by the community is consistent with the Conservancy's ability to fulfill its mission, and removal is conducted in a manner that does not adversely affect the long-term health of the species and ecosystems the Conservancy is seeking to protect; or 3) the actions are required by law.

PURPOSE:

In the course of The Nature Conservancy's work, it is sometimes appropriate to permit or take actions that kill or remove plants or animals. Such actions include, but are not limited to, collecting voucher specimens to permit accurate identification of species; burning to enhance native vegetation; hunting and trapping to control native and non-native animal populations; treating invasive plants with herbicides to reduce competition with native species; and permitting hunting, fishing, trapping, and gathering by native peoples and human communities. Because views on the taking of plant and animal life reflect the diversity of values embraced by our members, staff, partners, and the human communities in which we work, both domestically and internationally, Nature Conservancy employees must consider these views in any actions that allow killing or removal of organisms on Nature Conservancy-owned and/or -managed lands.

ORIGIN:

Approved by the Board of Governors on March 15, 1996. This policy also reflects existing Board of Governors policy.

REFERENCES, RESOURCES, and EXPLANATORY NOTES:

Responsibility, authority and accountability for decisions on removal of plants and animals reside with the Operating Unit director or with the local project director if responsibility has been delegated. Biological, legal, and financial risks should be carefully considered, as well as potential risk to the Conservancy's reputation. Consultation is encouraged as appropriate with science and stewardship staff, communication staff, legal staff, and conservation program managers, both within the Operating Unit and as may be needed, outside of the Operating Unit. Consultation with public natural resource management agencies may also provide useful information. Reasons for decisions should be documented as appropriate.

Refer to the Conservation Region Managing Directors for additional information.

Pioneer Title Agency, Inc.

LIMITED REALTY REPORT

ORDER NO: 16407
REFERENCE NO: BABACOMARI RANCH
PREPARED BY: MM/mm
DATE: May 21, 2008 **PLANT DATE** April 24, 2008 at 7:30 am

LOAN APPLICANT AND ADDRESS:
BURCH & CRACCHIOLO PA
ANDREW ABRAHAM
PO BOX 16882
PHOENIX, ARIZONA 85011-6882

LEGAL DESCRIPTION:
See Attached Exhibit "A"

APPARENT AND PRESUMPTIVE OWNER:
Babacomari Ranch Company Limited Partnership, which acquired title as Babacomari Ranch Company, an Arizona Limited Partnership

MORTGAGES, DEEDS OF TRUST AND AGREEMENTS NOT SATISFIED OF RECORD:
None

JUDGMENTS AND LIENS:
None

PROPERTY TAXES:

2007 Total Taxes under Tax Parcel No. 106-03-038	$1,978.76
Taxes paid in the Amount of:	$1,978.76
Delinquent Amount:	$0.00

This report does not constitute an insurance or guaranty of Title and the Company's liability hereunder is limited to the charges hereon.

EXHIBIT "A"

That portion of the SAN IGNACIO DEL BABOCOMARI Grant in the County of Cochise, State of Arizona, the Patent of which is recorded in Book 31, Deeds of Real Estate, page 206, records of Cochise County, Arizona, lying West of the West right of way line of State Route 90 as it currently exists;

EXCEPT any gold, silver or quicksilver mines or minerals of the same within the boundaries of the Grant as reserved in Patent from United States of America.

PROPERTY INFORMATION

1) Property: 1977 N HWY 90 , AZ

APN:	106-03-038	Tax Area:	0100	Use:	RANCH
Card#:		Prop Tax:	$1,978.76	Total Value:	$245,579
County:	COCHISE, AZ	Tax Yr: 2007	Delinq:	Land Value:	$88,642
Census:	13.00	Exemptions:		Imprv Value:	$156,937
Sectional:		Primary Asmt:		Taxable Val:	$240,423
School Dist:		Second Asmt:		Building Val:	$147,394
T/R/S:				Assd Yr:	2009
Subdivision:				% Improve:	64%
Owner:	BABACOMARI RANCH COMPANY			Owner Vest:	/ /
				Phone:	

Mail: PO BOX 490; SONOITA AZ 85637-0490 B007

Owner Transfer = Rec Dt: Price: Doc#: Type:
Sale Dt:

SALE & FINANCE INFORMATION

	LAST SALE	PRIOR SALE
Record/Sale Date:		
Sale Price/Type:		
Document #:		
Deed Type:		
1st Mtg Amt/Type:		
Rate/Type/Term:	/ /	
Cash Down:		
Lender:		
2nd Mtg Amt/Type:		
Rate/Type/Term:	/ /	
Transfer B&P:		
Title Company:		
Seller:		
New Construction:		

Other Last Sale Info = # Parcels: Type 2: Pend:

IMPROVEMENTS

Gross Area:	2,877
Bldg/Liv Area:	2,877
Ground Flr:	2,877
$/SF:	
Ttl Rooms:	
Bedrms:	
Ttl Baths/Fixt:	
Yr Built/Eff:	1940
# Stories:	1.00
Pool:	
Pool Size:	
Perimeter:	375
Porch Type:	
Patio Type:	
# Patios:	
Construct:	CONCRETE
Ext Wall:	
Roof Type:	
Roof Matl:	
Heat Type:	
Air Cond:	
Imprv Type:	
Condition:	
Quality:	
Garage Cap#:	
Parking Sqft:	
Parking Type:	

SITE INFORMATION

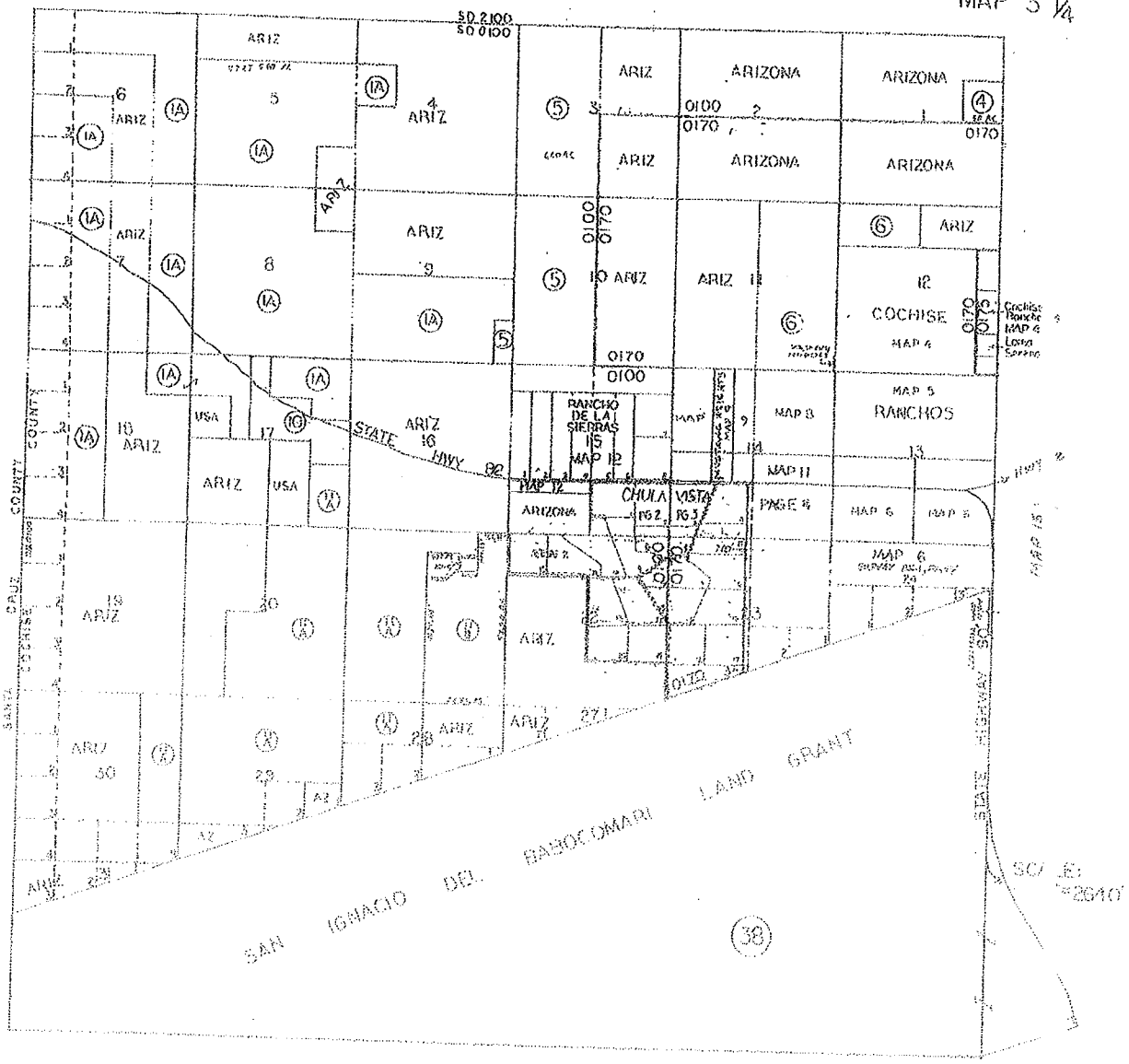
Zoning:		Acres:	10539.84
County Use:		Lot Area:	459,115,430
State Use:	4716	Lot Width:	
Bldg Class:		Lot Depth:	
# Bldgs:	1	Flood Panel:	
Bldg Type:	SINGLE FAMILY	Panel Date:	
Legal Blk/Bldg:		Flood Zone:	
Legal Lot/Unit:			

Legal Desc: THAT POR OF THE SAN IGNACIO DEL BABOCOMARI LAND GRANT LYING IN COCHISE COUNTY WLY OF THE W LINE OF H

TWP 20 RGE 19

Book 106 MAP 1

BOOK 106
MAP 3 1/4



TAXINQ COCHISE COUNTY TAX INQUIRY 5/23/08
RECPION PARCEL # 106-03-038-00-4 YR 2007 ROLL # 0023144 16:33:05
LEGAL DESC: THAT POR OF THE SAN IGNACIO DEL BABOCOMARI LAND GRANT LYING
AREA: 0100

NAME 1 : BABACOMARI RANCH COMPANY
NAME 2 :
NAME 3 :
C/O NAME:
STREET :
CITY ST:
ZIP :

	TAXES DUE	FEES PD	INTEREST PD	PENTALTY PD	TAXES D
1ST HALF:	.00	.00	.00	.00	989.3
2ND HALF:	.00	.00	.00	.00	989.3

1ST HALF PAID BY : BABACOMARI RANCH COMPANY DATE PAID : 10/31/2007
2ND HALF PAID BY : \ABACOMARI RANCH COMPANY LL DATE PAID : 4/29/2008
1ST HALF INTEREST DUE: .00 1ST HALF PENALTY DUE: .00
2ND HALF INTEREST DUE: .00 2ND HALF PENALTY DUE: .00

$19 18.70

F3=EXIT F5=LEGAL DESC. F10=TAX ROLL