

Arizona Water Protection Fund - Application Forms

The application forms are structured so that if they are done completely, *ADWR staff can write the contract from the application. They are also formulated around the principle that you have pre-planned your project and know how the project needs to be structured: what the components are , when and what personnel are needed and how much it will cost to complete each component.* Read the directions inside the box at the top of each form for specific information about completing the form.

If your project is straight-forward and relatively simple, your response within the application forms will be straight-forward and simple: a simple project may require only a paragraph of description for many forms. More complicated projects do require a more complicated response. It is highly recommended that you attend an application workshop and a one-on-one consultation with staff to assist you with the application forms.

Cover Page

Fill in all blanks on the cover page. Devise a short descriptive title for the proposal. Your project may fall into more than one of the four primary project types. If so, select all categories that apply. For #12 below, only list other monies that are secured at the time of application submittal. For #13c below, you may list the total of both secured and unsecured money that is committed at the time of application submittal. The difference between #13 and #12 should represent the total of unsecured money for your proposal.

Cover Page: Application Information

1. Title of Project: Milford Cienega Restoration

2. Type of Project:

3. Stream type

4. Date submitted August 17, 1998

Water Acquisition

Perennial

5. a. Date Attended an AWPf Workshop 6/9/98

Capital Project or other

Intermittent

5. b. Date Attended an AWPf Consultation 7/23/98

Water Conservation

Ephemeral

6. Applicant Name The Milford Trust

Research

7. Applicant address (city, county, zip code)

8. Inside AMA

****The Milford Trust**

Phoenix

Pinal

Outside AMA

500 N. Third Street, Suite 202

Prescott

Tucson

Tucson, AZ 85702

Santa Cruz

9. Contact person/title: Mary Hasseloffer

Phone number: 520-740-2425

Fax Number: 520-740-2425

10. Type of application:

New (X) Continuation ()

11. Project start date: April 1, 1999

End date: March 31, 2002

12. Other monies obtained and secured:

Grant type	Amount
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<u>Forest Service</u>	<u>\$5,400</u>
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<u>U of A</u>	<u>\$4,000</u>
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<u>Total</u>	<u>\$9,400</u>
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13. Estimated funding:

a. AWPf \$47,145

b. Applicant \$18,400 (includes volunteer labor)

c. Other \$9,400

d. Total \$74,945

14. Tax ID number: 86-5000186

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

K. Starr

Typed Name of Authorized Representative

Director, (520) 740-2123

Title and Telephone No.

Signature

Date Signed

****The Milford Trust is a 501(c)(3) charitable organization - see Attachment A, IRS determination letter and authorization from Milford Trust board of directors.**

Arizona Map

Please use the Arizona map included in the hard copy of the grant application manual. This map may be copied as necessary. Indicate on the map the approximate location of your project. Ensure that your markings are clearly visible on all five copies submitted. This map is sent out to people requesting summary information about submitted projects.

Limit this section to one page!! Begin this summary with a single sentence clearly stating the purpose of the project. List objectives, describe methods to be used, describe all major project features for which funding is being requested (which must also be indicated on the schematic drawing required on the next page) and indicate the significance of the proposed work to the maintenance, enhancement or restoration of Arizona's rivers, streams and associated riparian or aquatic habitats.

Summary Page

Summary:

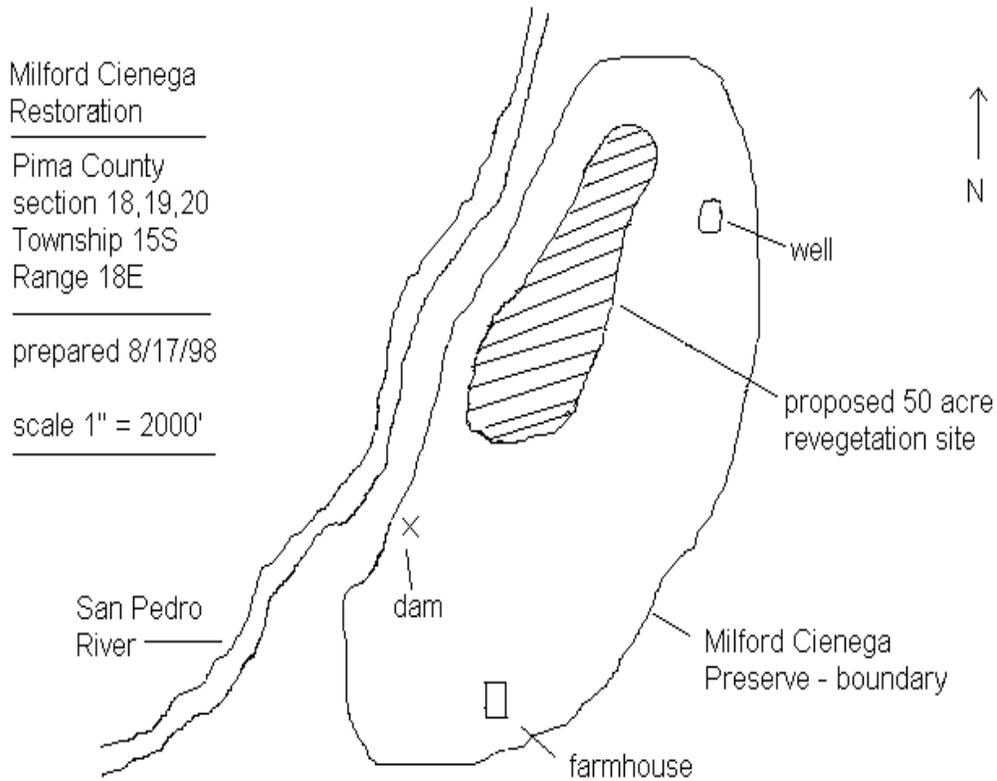
The goal of the Milford Cienega Restoration project is to restore the historic vegetative community and to create a structurally diverse and sustainable habitat. The Milford Cienega Preserve is a 300 acre parcel owned by the Milford Trust. Historic photographs of the site show that a cienega wetland, mesquite bosque and cottonwood-willow riparian forest existed here prior to conversion of the site to agricultural production in the early 1940s. The site was abandoned in the early 1980s and the Trust acquired the property in 1990. The Trust wanted to restore the cienega wetland site, and began by breaching the dam that impounded part of the cienega and diverted that water to the site of the original farmhouse. The wetland area gradually began to reestablish as water spread across the abandoned fields. The Trust began monitoring the site in 1994 at which time the hydrology of the wetland was reestablished. The cienega site is now vegetated with cattails, bulrush and other wetland plants. However, the proposed revegetation site continues to be dominated by exotic weeds, predominantly bermuda grass and Johnson grass. The project site is on the pre-entrenchment floodplain of the San Pedro River approximately 4 meters above the active floodplain. The channel has been stabilized to some degree by vegetative growth, and was not eroded during the 1983 or 1993 floods. Our management objective is to restore the native plant community within a 50 acre portion of the preserve. Our project will focus on those areas where regeneration of native species has not occurred. The restoration site will provide a diverse and resilient plant community which in turn will provide a higher quality habitat for wildlife. The preserve currently supports reptiles, mammals and birds including many neotropical migrants.

Our revegetation plan will include a site characterization (conducted by Gruber & Associates) to determine soil moisture gradients across the site. Appropriate hydrologically-based planting zones will be identified, and a planting design will be developed based upon published studies that correlate riparian plant distribution with depth-to-groundwater. The revegetation will use poles and container plantings of plant material collected from the site and surrounding area. Two neighboring landowners have allowed us access to their properties for the purpose of collecting poles and seed for the container plantings (authorization letters attached). The revegetation will include 1) pole plantings of willow and cottonwood and container plantings of ash and other woody species 2) container plantings of native shrubs and grasses including sacaton, knotgrass, vine-mesquite, button bush and sideoats grama 3) weed suppression with prescribed fire and hand application of herbicide and 4) ditch irrigation of plantings. An exempt well is situated at the site and will be used to supply the supplementary irrigation. The revegetation site will provide a new site for our nature preserve educational program. Development of the educational program will begin after the term of this project and is not a part of this application.

AWPF monies are requested to collect plant material, suppress noxious weeds, revegetate and monitor the site. The Trust will match costs for the site characterization, development of the revegetation plan, preparation of plant material, and will coordinate volunteer labor for the revegetation work. Additional matching funds are provided by the US Forest Service and the U of A.

Project Schematic Drawing

For projects involving construction and/or investigation of several physical features, include in this space a schematic drawing showing all the important project features located in relationship to one another and in relationship to important site physical features. This should be to scale and should visually indicate all project features for which funding is requested. The drawing must include the locations of the project features which are discussed within the proposal (e.g. locations of checkdams, revegetation areas, fence lines, water distribution systems, etc.) and existing or planned well and gage locations. Drawing shall meet the following criteria: size: 8.5" by 11"; contain a north arrow; scale; and contain a project title and date of preparation. Submit as many drawings as needed to demonstrate all project features.



Project Site Photographs

For all types of applications, include color photographs of the project area and site. Submit one set of standard 3 X 5 inch color photographs of the project area (or color copies) with the 5 copies of your application. Label photographs as to compass direction and describe and indicate on photo the location of the proposed project features.

Project Location & Environmental Contaminant Information

This form is to be completed for projects which involve a specific stream reach or watershed area. If the exact extent of the project area is not completely defined at the time this form is completed, please make note of this on line #9 & 10 below, and complete the form with location information which is as accurate as possible. Outline the study area on a 7.5 minute (15 minute if the project area is too large), U.S.G.S. topographic map and include a copy with each copy of the application.. The Arizona Map previously requested is for general public use when reviewing your application summary, while the U.S.G.S. map is for staff use. **All applicants must complete the environmental contaminant questions.**

LOCATION INFORMATION

- 1. County: Pima 2. Section: 18, 19, 20 3. Township: 15 S 4. Range: 18 E
- 5. Legislative District: 9
- 6. Stream Name: San Pedro River
- 7. Landownership of project area: The Milford Trust
- 8. Current land use of project area: Nature Preserve
- 9. Length of stream through project area: 1/2 mile
- 10. Size of project area (in acres): 50 acres
- 11. Area Benefited by Project Implementation: 50 acres

Miles of Stream Benefited: 1/2 mile
 Acres of Riparian Habitat (circle one) Enhanced, Maintained, Restored , Created: 50 acres

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

Take highway 89 north to highway 77, drive for 12 miles to the San Manuel exit. Continue through San Manuel until the blacktop ends. Turn south on the San Pedro road and continue for 12 miles to the Milford Lane turnoff.

ENVIRONMENTAL CONTAMINANT LOCATION INFORMATION

For purposes of this manual, environmental contaminants are substances which pose risk of harm to human health or the environment and include hazardous substances, hazardous wastes, petroleum products or Environmental Protection Agency priority toxic pollutants (defined by CERCLA 42 USC §9601, RCRA 42 USC §6903 and the Environmental Protection Agency). Environmental contaminants do not include wastewater from a wastewater facility permitted by a local, state, or federal authority having jurisdiction over wastewater.

- 1. Does your project site contain known environmental contaminants? Yes No XX 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 XX If yes, please identify the contaminant(s) and enclose data about the location and levels of contaminants.

Evidence of Control and Tenure

Proposed capital development plans and research projects shall be located on land and water which the applicant owns or manages. Research projects on sites not controlled by the applicant shall include and attach the access agreement or permit allowing the research. At a minimum, the applicant must include in the application as one of the first tasks obtaining and submitting the appropriate agreements prior to initiation of the remaining project tasks. For water, either surface water, groundwater or effluent, when included as a project feature or benefit, you must include evidence of control and tenure with your application or include in your application a task to obtain control.

1. If you own the land on which the project is located, attach a copy of the appropriate legal document showing title in the name of the Applicant, and include a legal description of the property.

If you manage the land on which the project is located, attach a copy of the lease, special use permit, intergovernmental agreement or other appropriate official instrument.

If you do not own or manage the land on which the project is located, attach documentation verifying ownership (as noted above) and attach a copy of the permit, agreement or letter of intent that allows you access to the site.

Attachment B -

Recorded deed attached. Access agreements for seed and pole collection from adjacent landowners attached.

2. If your project, including the benefits claimed for the Fund, involves surface water flows or use of groundwater withdrawals, demonstrate ownership and tenure by attaching the appropriate documentation .

If you do not own or manage the water that the project uses or that benefits the Fund, attach documentation verifying ownership (as noted above) and attach a copy of the permit, agreement or letter of intent that allows you use of the water.

Well number 55-58423 registered to Milford Trust (exempt)

Introduction

Give the background of the project. List the problem or problems that you address in your proposal, list the cause or causes of these problems, list the remedies or solutions and state the years of project-related benefit from the project that you will implement. Provide the necessary introductory information which supports your listing of the problem(s), cause(s), and solution(s). Describe the project area's relevant history if applicable. Justify the term your project will provide benefit. For on-going projects, the history and background of the project should be provided: Describe the site prior to project initiation, tasks that have been completed and any site changes that have occurred as a result of these activities.

Background:

In the early 1940s the project site was drained and cleared for agriculture. Farming continued on this site until the early 1980s, when the property owner abandoned the site. The Milford Trust purchased the site in 1990 for the purpose of creating a nature preserve on the San Pedro River. The Trust wanted to restore the cienega wetland site, and began by breaching the dam that impounded part of the cienega and diverted that water to the site of the original farmhouse. The wetland area gradually began to reestablish as water spread across the abandoned fields. The Trust began monitoring the site in 1994 at which time the hydrology of the wetland was reestablished. The cienega site is now vegetated with cattails, bulrush and other wetland plants. However, the proposed revegetation site continues to be dominated by exotic weeds, predominantly bermuda grass and Johnson grass. The project site is on the pre-trenchment floodplain of the San Pedro River approximately 4 meters above the active floodplain. The channel has been stabilized to some degree by vegetative growth, and was not eroded during the 1983 or 1993 floods.

Statement of problem(s):

Many floodplain sites in southern Arizona have been cleared for agriculture, farmed and then abandoned. This has destroyed many acres of floodplain habitat once dominated by mesquite bosques and sacaton riparian grasslands. These sites are further altered because of an increased depth to groundwater, the result of increased surface water diversions and groundwater pumping to supply a rapidly expanding human population. The normal flood regime along the river has been altered so that recruitment is limited; this further limits the resilience of the remaining riparian plant community. In some instances these physical changes can alter a site to the point where it can no longer sustain the historic vegetative community, and exotic plant species colonize the site. Fortunately, a preliminary assessment indicates that the Milford site maintains an adequate depth-to-groundwater to sustain the native riparian plant community once it is established.

Statement of cause(s) of the problem(s):

In the 1940's this site was drained and cleared for agricultural production. A berm was constructed to impound the cienega waters which were subsequently diverted for use at the farmhouse. A number of factors limit the natural reestablishment of the historic riparian plant community at the Milford site; exotic weeds currently dominate the site and out compete native plant species, there is insufficient seed production and transport to establish a new native plant population and surface soil moisture is inadequate for germination and support of seedlings.

Statement of project-related remedies or solutions:

The Trust has already taken steps to restore the historic plant community at this site. The berm has been breached, and the wetland area has begun to reestablish. The Trust will contract with Gruber & Associates to map soil moisture gradients over the project area, preliminary to developing a specific revegetation design. Prior to planting the area will be burned to remove dead plant material, return standing nutrients to the soil and to stimulate weed growth prior to herbicide application. This treatment should reduce the weed seed bank and maximize the

effectiveness of the herbicide. Under these conditions container plants with established root systems should be able to compete effectively with any remaining exotics for nutrients and moisture. Soil moisture conditions will be enhanced through the use of a temporary supplemental irrigation system, by using container grown plant material with established root systems and by planting when soil moisture conditions are optimal. An exempt well and underground irrigation delivery pipe are located adjacent to the revegetation site. The transfer and gated pipe are portable and can be used to irrigate any portion of the 50 acre revegetation site. Seed and poles will be collected from existing plant communities on neighboring lands. We plan to use a dense planting design in order to quickly establish a canopy that will inhibit the growth of sun loving exotics, establish a structurally diverse plant community and enhance the organic content of the soil through the production of litter.

In those areas where the depth to groundwater is relatively shallow (less than three feet) we will revegetate with broadleaf deciduous riparian species. Plants will be sited in the following gradient based upon increasing depth to water up to 3 feet from surface: willow, button bush, Fremont cottonwood, velvet ash, Arizona walnut and netleaf hackberry. Willow and cottonwood will be planted as poles; other species will be grown-out in 2 gallon pots and planted at one year of age. Poles and container plants will be protected from herbivores with Tubex. Plants will be irrigated at the time of planting and monthly through the spring and fall. Flood irrigation will continue to be used during dry periods for two years.

The sacaton grassland restoration area will consist of those sites with a depth to groundwater between 3 and 8 feet below surface. Sacaton will be grown-out in 2 gallon pots and planted at about 3 months of age. An equal number of tall-pot (14 inch) plantings will also be used so that we can compare the results of the two methods. Plants will be irrigated at the time of planting and monthly thereafter during the spring and fall. Flood irrigation will continue to be used during dry periods for two years.

The mesquite bosque restoration area will consist of those sites with a depth to groundwater greater than 8 feet. Mesquite will be grown-out in 5 gallon pots and planted at one year of age. The planting area will be irrigated at the time of planting and periodically during the spring and fall dry seasons. Flood irrigation will continue to be used during dry periods for two years.

After the revegetation plan has been developed, we will design a monitoring plan to evaluate the techniques that we propose. At a minimum we will be evaluating plant mortality and vigor. We will continue to monitor the site following the term of this project in order to evaluate the long-term efficacy of these techniques.

Statement of project years of benefit (Demonstrate your level of commitment to maintenance of project benefits and capital improvements; is it < 5 years, 5 - 10 years, 11-15 years, or 16 - 20 years?)

This project will have long-term benefit (greater than 20 years) because the plants are long-lived and there is little chance that the restoration site, which sits approximately 4 meters above the active floodplain will be eroded by flood waters. The Trust plans to monitor this site bi-annually for 10 years following the project term.

Scope of Work: Objectives

Objectives are specific, measurable outcomes of the project. List these objectives in numerical order, with the first objective having the most important outcome.

Objective #1: Determine the depth-to-groundwater/soil moisture gradients preliminary to developing a revegetation plan for the 50 acre revegetation site.

Objective #2: Increase the areal extent of riparian woodland, sacaton grassland and mesquite bosque at the Milford revegetation site. Increase the structural diversity of the Milford revegetation site. Provide additional cover and food for wildlife, including neotropical migratory birds.

Objective #3: Monitor the results of the revegetation in order to determine if we achieve an 85% survivorship of woody species and in general to determine the efficacy of the revegetation plan.

Describe in detail the tasks you will perform to accomplish your objectives and achieve your desired results. These tasks must be exactly the same as the tasks listed in your task-timetable. Please use the same task numbering on each form.

- A deliverable is a product produced from a task, which is submitted to the Commission and proves that the task was completed. Deliverables are often reports, photos, data, etc. that are submitted along with invoices for materials and labor.
- Obtaining permits and conducting monitoring are potential tasks for all applications. Obtaining access agreements for research projects is also another potential task for all research projects.
- Revegetation and Monitoring Plan development must be a task with an appropriate cost assigned if you do not currently have one(s) prepared. Go to Appendix B for appropriate Plan content outline.
- If appropriate to your project, have your last task be a Final Report and assign a value commensurate with the overall project value (5% - 10% of overall project value).
- As much as possible, make each Task discrete and payable upon completion. A few tasks will continue throughout the contract duration.

Scope of Work: Task Descriptions

Task #1 Description: Obtain Permits

The Milford Trust will obtain SHPO certification for project activities which may impact cultural resources. The Trust will negotiate an electrical supply agreement with APS to power the irrigation pump.

Deliverable description: Copies of permit and electrical supply agreement

Deliverable due date: April 30, 1999

AWPF task cost: \$0

Task #2 Description: Develop Revegetation Plan

The Trust will develop a detailed revegetation plan and design schematic for the site that includes delineation of the three primary planting areas, riparian forest, sacaton grassland and mesquite bosque. The Trust will contract with Gruber & Associates to conduct a site characterization. The purpose of the site characterization is to determine soil moisture and groundwater gradients across the agricultural field. This will allow us to delineate hydrologically-based planting areas within the field and identify target species for each planting zone. The revegetation plan will include a description of seed and pole collection, by volunteers overseen by the Trust botanist.

Deliverable description: Revegetation plan

Deliverable due date: July 31, 1999

AWPF task cost: \$997.50

Task #3 Description: Monitoring

Precipitation and Depth-to-Groundwater The Trust will monitor precipitation and depth-to-groundwater throughout the project period. This will allow us to draw conclusions regarding the effectiveness of the revegetation.

Precipitation will be measured daily at an on-site weather station. Depth-to-groundwater will be measured monthly throughout the project period in 20 wells distributed throughout the revegetation site. Multiple wells will be located in each of the revegetation zones. All wells will be topographically surveyed; depth-to-groundwater will be measured by dropping a tape in each well and measuring the distance from the top of the well to the water table. Plant vigor and mortality will be correlated with depth-to-water data.

Survivorship and Vigor of Plant Communities The Trust will monitor the percent survivorship of willow and cottonwood poles and container-grown plants. A stratified random sample of each woody species will be tagged and

monitored for survivorship in April 2000 and 2001. Vigor will be estimated based upon plant height and annual growth. Annual growth will be estimated by measuring the length of the previous season's growth on 10 randomly selected, stems per tagged plant. For the sacaton sample, half of the container plants monitored will be from the 2 gallon pots and the other from the tall-pot plantings. The two types of sacaton container plants will be planted in a random distribution within the appropriate sites identified in the revegetation design plan. Plants will be permanently tagged at the time of planting and survivorship and vigor will be measured in July 2000 and 2001. The Trust will establish five photo points at each of the three planting zones to document vegetation growth and condition. Four photographs will be taken annually during the growing season at each of the photo point locations.

Bird Use of the Riparian Area Five bird monitoring stations will be established in each of the restoration zones established during the first year of the project. Two observers will visit each station every month in the early morning and record the number of birds observed or heard calling for a period of six minutes before moving to the next station. The observers will also record observed breeding or nesting behavior. This data for the revegetation sites will be compared with monitoring data collected from undisturbed riparian habitat sites located on the adjacent cooperating landowners properties (see attached access agreements and letters of support).

Deliverable description: (1) Monitoring plans (2) Annual monitoring data and analysis reports

Deliverable due date: (1) July 31, 1999 (2) March 31, 2000, March 31, 2001, (part of final report) March 31, 2002

AWPF task cost: \$9975

Task #4 Description: Grow-out Grasses, Shrubs and Trees

Volunteers directed by the Trust botanist will collect seed for propagation of Arizona walnut, button bush, Arizona ash, netleaf hackberry, sacaton grass, sideoats grama and sand dropseed from the project site or if not available on site, from the adjacent landowners properties (see access agreements and letters of support). Seeds will be cleaned and treated. Grass seed will be planted in pots in early May 1999 and 2000, and grown in the greenhouse for 3 months. One-half of the sacaton grass seed will be planted in two gallon containers, and the rest will be planted in 14" tall-pots. The Trust will contract with a local nursery to propagate and grow-out approximately 1,500 trees and shrubs. Half of the trees and shrubs will be planted in the fall of 1999 and transplanted in winter 2000. The rest will be planted in the fall of 2000 and transplanted at the site in winter 2001. Greenhouse space is being donated by the University of Arizona; a student will be hired to care for the plants until they are transplanted.

Deliverable description: Annual report describing seed and pole collection and grow-out

Deliverable due date: (1) First annual report March 31, 2000 (2) Second annual report March 31, 2001 (3) Summary report part of final report March 31, 2002

AWPF task cost: \$5775

Task #5 Description: Site Preparation

Prior to planting the area will be burned to remove dead plant material, return standing nutrients to the soil and to stimulate weed growth prior to herbicide application. This treatment should reduce the weed seed bank and maximize the effectiveness of the herbicide. Prior to planting, selective control of weeds will be done by spot treating with glyphosate along planting furrows. The herbicide application will be done by a licensed subcontractor using a trailer-mounted agricultural sprayer. Follow-up treatments will be implemented as needed throughout the contract period. Under these conditions container plants with established root systems should be able to compete effectively with any remaining exotics for nutrients and moisture. Soil moisture conditions will be enhanced through the use of a temporary supplemental irrigation system, by using container grown plant material with established root systems and by planting when soil moisture conditions are optimal. The transfer and gated pipe is portable and can be used to irrigate any portion of the 50 acre revegetation site. Seed and poles will be collected from existing plant communities on neighboring lands. We plan to use a dense planting design in order to quickly establish a canopy that will inhibit the growth of sun loving exotics, establish a structurally diverse plant community and enhance the organic content of

the soil through the production of litter.

Deliverable description: Site preparation reports

Deliverable due date: (1) March 31, 2000 (2) March 31, 2001 (3) Summary report part of final project report March 31, 2002

AWPF task cost: \$6,300

Task #6: Revegetation

In accordance with the revegetation design developed in task 2, the Trust botanist will direct volunteers in the planting of 1,500 nursery grown native trees and shrubs, one hundred cottonwood poles and 1,400 willow poles. Cottonwood and willow poles will be planted using a hand-held soil auger which will extract soil down to the groundwater table. The Trust will contract with a local nursery to propagate and grow-out approximately 1,500 container grown trees and shrubs. Half of the trees and shrubs will be planted in the fall of 1999 and transplanted in winter 2000. The rest will be planted in the fall of 2000 and transplanted at the site in winter 2001. Grass seed will be planted by volunteers overseen by the Trust botanist in May 1999 and 2000, and grown in a greenhouse for 3 months. Greenhouse space is being donated by the University of Arizona; a student will be hired to care for the plants until they are transplanted. The holes for container plants will be drilled using a tractor mounted auger. Woody species will be protected from herbivores with Tubex.

Broadleaf deciduous species will be planted in those areas where the depth to groundwater is less than three feet. One year old container grown plants will be sited in the following gradient based upon increasing depth to water up to a maximum of 3 feet from surface: willow, button bush, Fremont cottonwood, velvet ash, Arizona walnut and netleaf hackberry. Plants will be irrigated at the time of planting and monthly through the spring and fall. Flood irrigation will continue to be used during dry periods for two years.

The sacaton grassland restoration area will consist of those sites with a depth to groundwater between 3 and 8 feet below surface. Three month old sacaton plants from the two different container sizes will be randomly interspersed throughout the sacaton planting zone. Plants will be irrigated at the time of planting and monthly thereafter during the spring and fall. Flood irrigation will continue to be used during dry periods for two years.

One year old mesquite tree container plants will be planted in those sites with a depth to groundwater greater than 8 feet. The planting area will be irrigated at the time of planting and periodically during the spring and fall dry seasons. Flood irrigation will continue to be used during dry periods for two years.

Deliverable description: Report describing revegetation, photographs of revegetation site

Deliverable due date: (1) First half of revegetation, March 31, 2000 (2) Final revegetation report part of final project report, March 31, 2001

AWPF task cost: \$18,637.50

Task #7 Description: Attend AWPF Information Transfer Meeting

The Trust botanist will prepare a poster board and summary presentation on the Milford Cienega Restoration project.

Deliverable description: Photograph of poster board and abstract

Deliverable due date: March 31, 2002

AWPF task cost: \$472.50

Task #8 Description: Final Project Report

The Milford Trust will prepare a report that describes the objectives of the Milford Cienega Restoration project, revegetation plan, methodology, monitoring data and final analysis, evaluation of project success and recommendations for future restoration work based upon the results of this project.

Deliverable description: Final project report

Deliverable due date: March 31, 2002

AWPF task cost: \$4987.50

Sampling Plans, Revegetation Plans, Monitoring Plans (Water Quality, Hydrology, Vegetation, Wildlife, etc.), Photo Monitoring Plans: Some applications may include baseline environmental inventories and most will contain project monitoring. Within your application, describe your monitoring or sampling objective and, in as much detail as possible, describe the monitoring and sampling methodology, and/or study design that will be used to accomplish that objective. Include a description of the equipment you wish the Fund to purchase. For water features include: water level, well schematics, USGS gage station data, well number/location, existing hydrologic reports, recharge or recovery plans. Reference Appendix B for more detailed outlines.

Again, submit as much of the sampling plan, monitoring plan, revegetation plan, etc. information as possible with the application addressing as elements of plan outlines in Appendix B. If you receive a grant award, you must submit detailed plans as deliverables. ***Include in your application*** a task and appropriate budget within the Scope of Work: Sampling, etc. Plans and on budget forms to complete detailed plan(s) after grant award.

Scope of Work: Sampling, Revegetation and Monitoring Plans

Revegetation Plan

The revegetation plan will be developed in detail as part of this project. The planting design will be based upon a site characterization that will be conducted by Gruber & Associates. The purpose of the site characterization is to determine soil moisture and groundwater gradients across the agricultural field. The Trust will develop a detailed revegetation plan and design schematic for the site that includes delineation of the three primary planting areas, riparian forest, sacaton grassland and mesquite. This will allow us to delineate hydrologically-based planting areas within the field and identify target species for each planting zone. Volunteers directed by the Trust botanist will collect seed for propagation of Arizona walnut, button bush, Arizona ash, netleaf hackberry, sacaton grass, sideoats grama and sand dropseed from the project site or if not available on site, from the adjacent landowners properties (see access agreements and letters of support). Seeds will be cleaned and treated. The Trust will contract with a local nursery to propagate and grow-out approximately 1,500 trees and shrubs. Half of the trees and shrubs will be planted in the fall of 1999 and transplanted in winter 2000. The rest will be planted in the fall of 2000 and transplanted at the site in winter 2001. Grass seed will be planted by volunteers overseen by the Trust botanist in May 1999 and 2000, and grown in a greenhouse for 3 months. Greenhouse space is being donated by the University of Arizona; a student will be hired to care for the plants until they are transplanted.

Prior to planting the area will be burned to remove dead plant material, return standing nutrients to the soil and to stimulate weed growth prior to herbicide application. This treatment should reduce the weed seed bank and maximize the effectiveness of the herbicide. Prior to planting, selective control of weeds will be done by spot treating with glyphosate along planting furrows. The herbicide application will be done by a licensed subcontractor using a trailer-mounted agricultural sprayer. Follow-up treatments will be implemented as needed throughout the contract period.

Soil moisture conditions will be enhanced through the use of a temporary supplemental irrigation system, by using container grown plant material with established root systems and by planting when soil moisture conditions are optimal. There is an exempt well adjacent to the revegetation site (well number 55-58423). The transfer and gated pipe are portable and can be used to irrigate any portion of the 50 acre revegetation site. Seed and poles will be collected from existing plant communities on neighboring lands. We plan to use a dense planting design in order to quickly establish a canopy that will inhibit the growth of sun loving exotics, establish a structurally diverse plant community and enhance the organic content of the soil through the production of litter.

Monitoring Plans

Our general monitoring objective is to determine the success of the revegetation effort. Specific objectives include 1) generating data to correlate plant vigor (vigor will be estimated based upon plant height and annual growth) with

depth-to-groundwater 2) determine percent survivorship of woody species - we have decided that the revegetation project will be considered a success if we achieve 85% survivorship 3) evaluate survivorship and vigor of sacaton using two alternate propagation methods 4) evaluate habitat value of the restoration site in comparison with adjacent undisturbed riparian habitat sites.

Precipitation and Depth-to-Groundwater The Trust will monitor precipitation and depth-to-groundwater throughout the project period. This will allow us to draw conclusions regarding the effectiveness of the revegetation. Precipitation will be measured daily at an on-site weather station. Depth-to-groundwater will be measured monthly throughout the project period in 20 wells distributed throughout the revegetation site. Multiple wells will be located in each of the revegetation zones. All wells will be topographically surveyed; depth-to-groundwater will be measured by dropping a tape in each well and measuring the distance from the top of the well to the water table. Plant vigor and mortality will be correlated with depth-to-water data.

Survivorship and Vigor of Plant Communities The Trust will monitor the percent survivorship of willow and cottonwood poles and container-grown plants. A stratified random sample of each woody species will be tagged and monitored for survivorship. The sample population will include 200 willows, 100 cottonwoods, 100 button bush, 100 walnut, 300 ash and 100 hackberry. Percent survivorship will be measured by counting the number of dead and alive plants by species. Determination that a plant is dead will be based on a visual assessment. Vigor will be estimated based upon plant height and annual growth. Annual growth will be estimated by measuring the length of the previous season's growth on 10 randomly selected, stems per tagged plant. For the sacaton sample, half of the container plants monitored will be from the 2 gallon pots and the other from the tall-pot plantings. The two types of sacaton container plants will be planted in a random distribution within the appropriate sites identified in the revegetation design plan. Plants will be permanently tagged at the time of planting and survivorship and vigor will be measured in July 2000 and 2001. The Trust will establish five photo points at each of the three planting zones to document vegetation growth and condition. Four photographs will be taken annually during the growing season at each of the photo point locations.

Bird Use of the Riparian Area Five bird monitoring stations will be established in each of the restoration zones established during the first year of the project. Two observers will visit each station every month in the early morning and record the number of birds observed or heard calling for a period of six minutes before moving to the next station.. The observers will also record observed breeding or nesting behavior. This data for the revegetation sites will be compared with monitoring data collected from undisturbed riparian habitat sites located on the adjacent cooperating landowners properties (see attached access agreements and letters of support).

Project Budget Forms

On the project budget form, break down your budget into Administrative costs, Direct Labor costs, Other Direct costs, Outside Services costs, and Capital Outlay costs. It is most helpful to identify all costs by Task number . Identify requested AWPf funding on the first form and other matching funds on the next form.

Administrative costs are management and overhead costs and by statute the total administrative costs charged to the AWPfC cannot exceed 5% of the total amount requested from the AWPf.

Direct Labor costs include the labor costs directly involved with the project. Break down these costs by: Job classification (e.g., laborer, project scientist, hydrologist, etc.); average cost/hour for that job classification; number of hours for that job classification; and total cost [Total cost = (Job classification cost/hour) x (number of hours)].

Other Direct cost include supplies and materials, paper, pencils, computer time, per diem, printing, public relations, etc.

Outside Services are consultants or subcontractors.

Outlay Capital costs include any equipment costs greater than \$1000.00.

TASK: Number and short description	AWPF FUNDS REQUESTED					TOTAL
	ADMIN COSTS (1)	DIRECT LABOR COSTS (2)	OTHER DIRECT COSTS	OUTSIDE SERVICES	CAPITAL OUTLAY (3)	
1. Permits						
2. Revegetation Plan	\$47.50	\$950.00*				\$997.50
3. Monitoring	\$475.00	\$8,000.00*	\$1,500.00*			\$9,975.00
4. Grow-out	\$275.00	\$1,000.00*	\$4,500.00*			\$5,775.00
5. Site Preparation	\$300.00		\$6,000.00*			\$6,300.00
6. Revegetation	\$887.50		\$17,750.00*			\$18,637.50
7. Information Transfer	\$22.50	\$450.00*				\$472.50
8. Final Report	\$237.50	\$4,750.00*				\$4,987.50
AWPF Total	\$2,245.00	\$15,150.00	\$29,750.00			\$47,145.00

***See Budget Detail for Cost Breakdown**

TASK: Number and short description	OTHER FUNDS (MATCHING) (4)					
	ADMIN COSTS (1)	DIRECT LABOR COSTS (2)	OTHER DIRECT COSTS	OUTSIDE SERVICES	CAPITAL OUTLAY (3)	TOTAL
1. Permits		\$2,000.00*				\$2,000.00
2. Revegetation Plan				\$8,000.00*		\$8,000.00
3. Monitoring						
4. Grow-out				\$4,000.00*		\$4,000.00
5. Site Preparation		\$5,400.00*				\$5,400.00
6. Revegetation		\$8,400.00*				\$8,400.00
7. Information Transfer						
8. Final Report						
Matching Total		\$15,800.00		\$12,000.00		\$27,800.00

* See Budget Detail

Detailed Budget BreakdownDirect Labor Costs

Botanist 50 days @ \$154.50/day = \$7,725

Project Manager 60 days @ \$123.75/day = \$7,425

Other Direct Costs

Monitoring - tags, flags, film, tape measures, 2 sets of field guides, 2 cameras = \$1,500

Grow-out - pots, trays, soil = \$4,500

Revegetation - tractor rental, auger rental, tools, Tubex = \$17,750

Site Preparation - herbicide, gloves, tools, fuel, herbicide sprayer rental = \$6,000

Matching Information

Provide written evidence of all secured funds (in-hand or committed in writing) that you are listing on the cover page. For unsecured funds, list their amount and describe their status. If you were to obtain them, list when this would occur. The value of volunteer labor is based on current minimum wage; technical volunteer labor can be based on an hourly fee comparable to a consultant's fee. An explanation of any in-kind contributions listed in your application is recommended.

*Direct Labor

Archeologist (SHPO) 5 days @ \$400/day = \$2,000 (Milford Trust)

Volunteers 20 days @ \$42/day*10 volunteers = \$8,400 (Milford Trust)

*Outside Services

Greenhouse/grow-out - \$4,000 (U of A)

Site Characterization - \$8,000 (Gruber & Associates fee paid by Milford Trust)

Fire Crew 15 days @ \$360/day = \$5,400 (Forest Service)

*Attachment C - secured matching fund verification letters from Forest Service and U of A

Existing Plans

Discuss any existing plans, reports or information that are relevant to the project and that the Commission should be aware of when evaluating your proposal. This might include other projects that are being performed or being planned in the area that may affect your project, or local planning/zoning changes that could impact the project area. Emphasize any institutional partnerships and collaborative planning being used in your project.

Existing Plans:

The Milford Cienega Restoration project will complement other land protection projects in the San Pedro River Valley such as the Teran Watershed Project and the Bureau of Land Management Cascabel planning effort. The Milford project is consistent with the resource needs assessment developed in 1997 by the NRCD, which identifies riparian communities along the San Pedro River as valuable resource areas.

Community Support

Indicate the community support for your project from within the project impact area. Include signed copies of letters from community organizations or groups that support your project. Please be aware that for public support to affect your proposal's criteria rating score, it must be included with your application. If pertinent, describe your commitment to work jointly with affected cities, towns, counties, NRCs, special districts, and/or Indian tribes. If you are a federal or state agency, you should attach evidence of support from those citizens who lease or hold use-permits for the lands to be impacted by your project. Indications of public support for your proposal that are received after your application is submitted will be forwarded to the Commission and may affect their decisions on which proposals to fund, but will not affect the criteria rating score.

Community Support:

Letters of Support (Attachment D):

1. Pima Association of Governments Environmental Planning Advisory Committee
2. The Redington NRC
3. Morris and Frieda Throckmorton (neighboring landowners)
4. Nigel Hoopenthal (neighboring landowner)
5. Bureau of Land Management
6. Tucson Audubon Society

Personnel

Indicate the key personnel associated with this project. Include a brief biographical sketch that describes relevant qualifications.

Personnel:

Attachment E - Project Personnel Resumes

Project Manager: Mary Hasselhoffer, Hydrologist, Milford Trust

Botanist: Stella Stolonifera, Milford Trust

Archeologist: Olan Oldstuff, Anderson Archeology

Site Characterization: Arturo Archuleta, Hydrologist, Gruber & Associates

SHPO Certification (must be submitted)

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

PROJECT TITLE: _____

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

- 1. Does the project have the potential to disturb the surface and/or subsurface of the ground?
YES: X NO: _____
- 2. Are there any buildings or structures (including mines, bridges, dams, canals, etc.) which are 50 years or older within the project area that have the potential to be disturbed by the proposed activity?
YES: _____ NO: X
- 3. Are there any known prehistoric and/or historic archaeological sites within the project area?
YES: X NO: _____
- 4. Are you aware of any archeological investigations that have been performed within one (1) mile of the project area?
YES: _____ NO: X

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

Authorized Signature

Date

If you have answered "YES" to any of the questions above, please answer the following questions.

SHPO Certification

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

The project site was cleared for agricultural production in the early 1940's. The proposed project entails revegetating the site with cottonwood and willow pole plantings, container plantings of trees and shrubs and ditch irrigation. The project area covers approximately 50 acres. If this grant is funded a cultural resource survey will be completed and forwarded to the SHPO office.

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

The project site is an abandoned agricultural field that was leveled for cultivation. The project site is on the west bank of the San Pedro River.

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

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

YES:_____ **NO:** **X**_____

DON'T KNOW:_____

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

YOU MUST SUBMIT THIS FORM WITH YOUR COMPLETED APPLICATION

ATTACHMENT A

501 (C) (3) IRS DETERMINATION LETTER
AUTHORIZATION LETTER FROM BOARD OF DIRECTORS

ATTACHMENT B

RECORDED PROPERTY DEED
ACCESS AGREEMENTS

ATTACHMENT C
MATCHING FUND VERIFICATION LETTERS

ATTACHMENT D
LETTERS OF SUPPORT

ATTACHMENT E
PROJECT PERSONNEL RESUMES