

**ARIZONA GAME AND FISH DEPARTMENT
HABITAT PARTNERSHIP COMMITTEE
HABITAT ENHANCEMENT AND WILDLIFE MANAGEMENT PROPOSAL**

Game Branch / HPC Project Number:	16-516
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PROJECT INFORMATION

Project Title: Three Sisters Water Catchment

Region and Game Management Unit: Tucson Region, Game Management Unit 36C

Local Habitat Partnership Committee (LHPC): <ul style="list-style-type: none"> • Tucson HPC 	Was the project presented to the LHPC? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
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Has this project been submitted in previous years? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> If Yes, was it funded? YES <input type="checkbox"/> NO <input type="checkbox"/> → Funded HPC Project #(s):

Project Type: Water Catchment

<p>Brief Project Summary: This proposal uses a landscape-scale approach to provide permanent long-term wildlife water sources throughout GMU 36C. Southern 36C (the Santa Margarita Ranch) represents some of the best mule deer and javelina habitat in the unit. Its proximity to the Buenos Aires Wildlife Refuge, which has not been grazed since 1985, attributes to healthy mule deer and wildlife populations. Water, however, is extremely scarce throughout Unit 36C and is only present in earthen stock tanks after a heavy monsoon period and during the winter and early spring months and seldom lasts into May. The installation of 10 new water catchments strategically located throughout 36C on both the Kings Anvil Ranch and the Santa Margarita Ranch would enable mule deer to take advantage of forage resources currently unavailable due to lack of nearby water. The project would be completed in multiple phases installing 1-2 catchments per year pending funding and volunteer availability. The 10,000+ gallon systems are apron/ tank systems. Wildlife friendly fences will be installed around each of the developments to exclude livestock. Providing water throughout the range also may potentially increase mule deer and javelina populations which will intern increase hunter opportunity. As stated by Marshal et al. (2006), (water) developments may reduce the need for seasonal movements, make a greater proportion of the range and its forage available to deer, reduce competition for forage in exploited range, decrease risks associated with long-distance movements (e.g., Nicholson et al. 1997, Bleich and Pierce 2001) and, thereby, increase deer abundance (Krausman and Czech 1998).</p>

Game Wildlife Species to Benefit: Mule deer, Whitetail deer, Javelina, Pronghorn, Quail, other small game and non-game species.
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<p>Implementation Schedule (Month/Day/Year):</p> <p><u>Project Start Date:</u> March 1, 2017</p> <p><u>Project End Date:</u> March 30, 2018</p>	<p>Environmental Compliance:</p> <p>NEPA Completed: Yes<input type="checkbox"/> No<input type="checkbox"/> N/A<input checked="" type="checkbox"/></p> <p>Projected Completion Date: _____</p> <p>State Historic Preservation Office - Archaeological Clearance:</p> <p>Yes<input type="checkbox"/> No<input checked="" type="checkbox"/> N/A<input type="checkbox"/></p> <p>Projected Completion Date: <u>March 1, 2017</u></p> <p>Arizona Game and Fish Department EA Checklist: N/A<input type="checkbox"/></p> <p>To be Completed by: <u>J. Currie, AZGFD</u></p> <p>Projected Completion Date: <u>March 1, 2017</u></p>
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PROJECT FUNDING		
Special Big Game License Tag Funds Requested:	\$ 30,000	
Cost Share or Matching Funds:	\$ 37,500	
Total Project Costs:	\$ 67,500	
PARTICIPANT INFORMATION		
Applicant (please print): Mark Frieberg	Address: 555 N Greasewood Rd Tucson, AZ 85745	E-mail: mfrieberg@azgfd.gov
Telephone: 520-609-6383		Date: 9/01/16
AGFD Contact and Phone No. (If applicant is not AGFD personnel):		
Project has been coordinated with: Joe Currie (AGFD), and Tucson HPC		

NEED STATEMENT – PROBLEM ANALYSIS:

Not only in Unit 36C, but mule deer numbers and distribution have been declining throughout the West since the latter third of the 20th century. To address this concern, the Western Association of Fish and Wildlife Agencies (WAFWA), an organization represented by 17 states and four Canadian provinces, created a Mule Deer Working Group (Group). Using adaptive resource management, the Group sent out to find “solutions to our common mule deer management problems” in the seven different ecoregions in North America. Overall, loss and degradation of habitat was determined to be the single greatest factor that has caused declines in mule deer. In the Southwest Desert Ecoregion, rainfall and competition with livestock were found to be the two biggest limiting factors. The number one recommendation of the Group to improve mule deer management in the Southwest Desert Ecoregion was to **create sources of water in areas where water is limiting** and where other potentially limiting factors are being addressed. Also, consistent with the Group’s recommendation is the Department’s Species Management Guidelines (SMG) which provides goals, objectives, strategies and procedures for a specific species. The SMG outlines four ways to improve and enhance deer habitat to accomplish the overall goal of increasing mule deer populations to levels that provide diverse recreational opportunities. Number one on the list is: Protect and maintain current water sources. Where water is lacking and the distribution and abundance of deer can be influenced, develop **new** water sources.

In December of 2009, a water development plan was initiated for Game Management Unit 36C. Both, dirt tanks and ranchers water systems were evaluated based on their effectiveness and year round availability. Deer habitat, no matter how attractive, will not be utilized if it is not near a source of water. Water sites should be no more than 2-3 miles apart and even closer in rough terrain (Wildlife Management Handbook, Managing Desert Mule Deer). WAFWAs Habitat Guidelines for Mule Deer support this suggesting that water sources not be more than 3 miles apart so all mule deer habitat is within 1.5 miles of a permanent water source (Brownlee 1979, Dickinson and Garner 1979). Water is a critical component of mule deer

habitat on both the Santa Margarita Ranch and Kings Anvil ranches it is extremely scarce and is only present in earthen stock tanks after a heavy monsoon period and during the winter and early spring months and seldom lasts into May. Marshal et al. (2006) stated that water in the absence of forage and cover likely will not create mule deer habitat, but forage and cover in the absence of water may provide deer habitat, at least seasonally. Thus, catchments might make forage resources, which would otherwise be unavailable, available year-round. Further, where deer might otherwise make seasonal movements between parts of their range with forage and parts with water, developments may reduce the need for seasonal movements, make a greater proportion of the range and its forage available to deer, reduce competition for forage in exploited range, decrease risks associated with long-distance movements (e.g., Nicholson et al. 1997, Bleich and Pierce 2001) and, thereby, increase deer abundance (Krausman and Czech 1998).

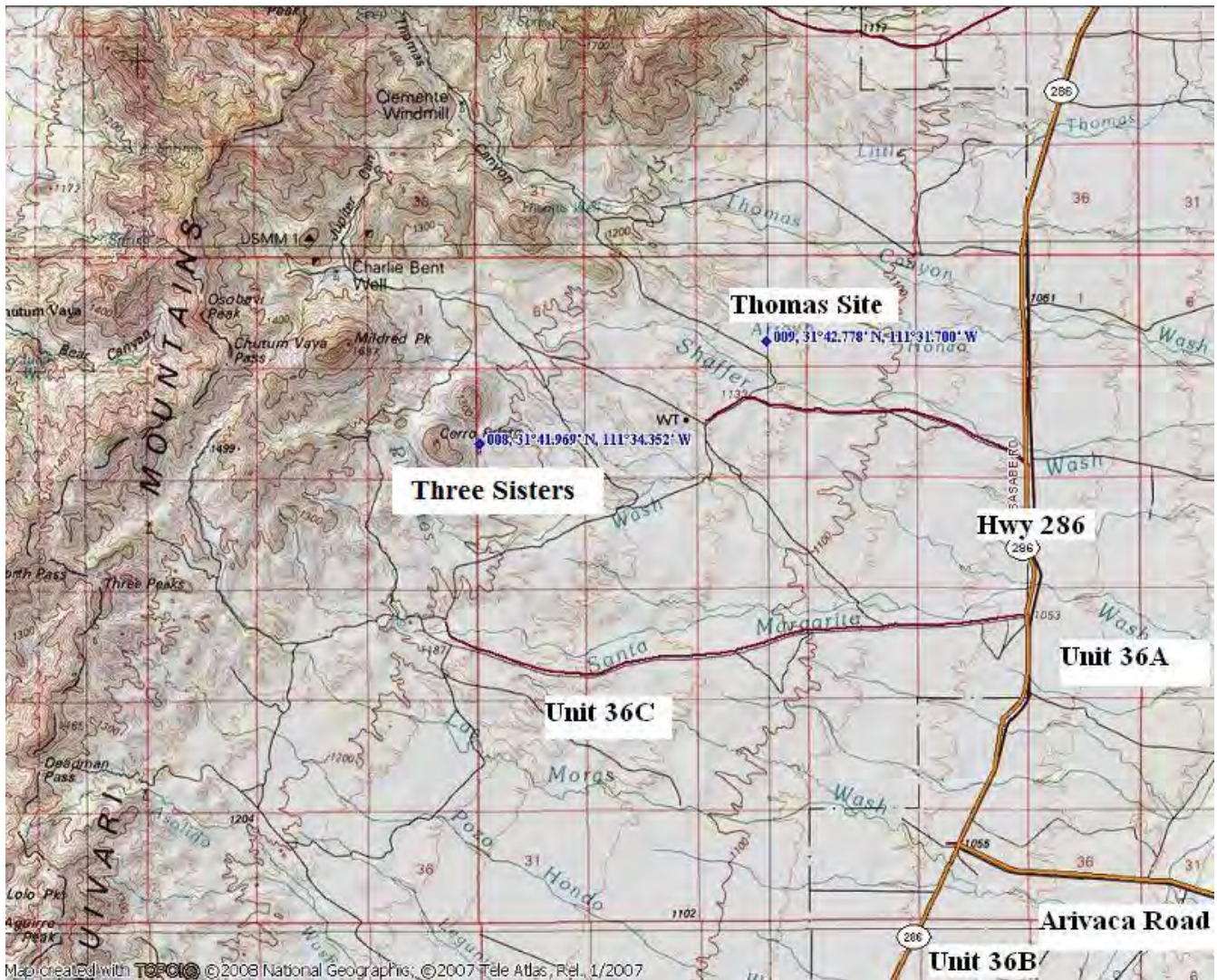
PROJECT OBJECTIVES:

- To increase deer and javelina populations by providing dependable, long term, self-sustaining, quality water sources and by increasing the use of otherwise unavailable forage resources
- To increase hunter opportunity
- To install systems that have a long lifespan (40-50 years for storage and collection systems, 25 years for drinking troughs)
- To install systems that do not require supplemental hauling except in rare or exceptional circumstances
- To install systems that are accessible and that requires minimal routine maintenance
- To monitor the use of these waters using remote digital game cameras

PROJECT DESCRIPTION AND STRATEGIES:

By monitoring the current water availability in Unit 36C, taking into account the ranchers water systems and recording dry dates of consistently dry dirt tanks, a water development plan was crafted based on location throughout the unit. There were 7 sites identified on the Kings-anvil Ranch and 2 sites on the Santa Margarita Ranch that well-exceeded the above mentioned 1.5 mile radius to other year round water sources. The installation of water catchments strategically located at these sites would enable mule deer to take advantage of forage resources currently unavailable due to lack of nearby water. The project would be completed in series of phases installing 1-2 catchments per year pending funding and volunteer availability.

PROJECT LOCATION:



LAND OWNERSHIP AT THE PROJECT SITE(S):

Arizona State Land

IF PRIVATE PROPERTY, IS THERE A COOPERATIVE BIG GAME STEWARDSHIP or LANDOWNER AGREEMENT BETWEEN THE LANDOWNER AND THE DEPARTMENT?

YES[] NO[] N/A[x]

HABITAT DESCRIPTION:

The proposed location of this catchment is at an elevation of about 3700' in upper Sonoran Desert grassland habitat consisting of various grass species, mesquite, and shrubs.

ITEMIZED USE OF FUNDS:

Item	Dimensions	Cost	Cost Share	Funds Needed
Four PVC 2500 gallon tanks (with mats)	8'x13' each	\$14,900		\$14,900
24'x72' R panel apron package	24'x72'	\$5,910		\$5,910
3'x4' walk-in standard trough	3'x4'	\$3,550		\$3,550
Wildlife "friendly" livestock enclosure fence	150'x150'	\$2,100		\$2,100
Plumbing and misc. materials		\$1,200		\$1,200
Tax @ 8.1%		\$2,240		\$2,240
Digital Monitoring Camera		\$100		\$100
Labor-		\$37,500	\$37,500	\$0
Total		\$67,500		\$30,000

LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:

- Below is an all inclusive list of potential cooperators.
 - The labor cost of this catchment will be covered by either PR funds (if contractor is used) or by the departments development branch.
 - AGFD Development Branch: acquire the materials and provide equipment and minimal labor for construction if needed.
 - Arizona Chapter of the Safari Club– volunteer labor and equipment
 - Mule Deer Foundation – volunteer labor and equipment
 - Tucson HPC: coordinate project funding opportunities

WOULD IMPLEMENTATION OF THIS PROJECT ASSIST IN PROVIDING, MAINTAINING, OR FACILITATING RECREATIONAL ACCESS?

YES NO N/A

Yes. This proposed location is on the Santa Margarita Ranch, which currently works with the Arizona Game and Fish Department to offer public access to hunters. Implementing this project would help maintain a relationship with the Ranch by likely resulting in offering year round water to wildlife that otherwise place pressure on the Ranches small and antiquated water system for cattle.

PROJECT MONITORING PLAN:

Remote digital cameras will be used to monitor density and frequency of wildlife water use during the months of May-July if cameras are available. This will enable the Wildlife Manager to make better informed decisions for the management of wildlife within GMU 36C.

Water levels will be monitored at least twice per year with emphasis during the warmer drier months by the Wildlife Manager. Additional monitoring will be conducted as needed. Minor maintenance will also be conducted as needed by the Wildlife Manager. The AGFD Development Branch will be responsible for major maintenance issues.

PROJECT MAINTENANCE:

The maintenance of each catchment will continue to be the responsibility of the AGFD. The Wildlife Manager will be responsible for coordinating this.

PROJECT COMPLETION REPORT TO BE FILED BY:

Joe Currie

WATER DEVELOPMENT PROJECTS (*please use the worksheet below*):

TREE CLEARING/REMOVAL PROJECTS (*please use the worksheet below*):

ARIZONA GAME AND FISH DEPARTMENT **WATER DEVELOPMENT WORKSHEET**

PROJECT TITLE: _____

- 1) **Is the water development listed as a priority in the most recent “Wildlife Water Development Annual Implementation Schedule?” Yes**
- 2) **Please list the Development Branch personnel and date coordinated with for this project. April 2012, with Joe Currie**
- 3) **What is the estimated annual inches of precipitation for the area? (mark one)**
2-4 4-6 6-8 8-10 10-12 12-14 14-16 >16
- 4) **Is there a perennial water source available to big game within four miles of this project?**

YES (please complete #5 below) NO (skip #5 below)

- 5) **For the accessible, perennial water source nearest this project:**
Name of water source:
Type of water source (catchment, spring, dirt tank):
Ownership of water source:
Distance in miles from project:
- 6) **Is the target wildlife species a result of transplant efforts? YES NO**
- 7) **Please list any special land management status for the project site (i.e. Wilderness, National Park, National Monument). If private land, list landowner. N/A**
- 8) **Please provide the following information about access to the proposed site:**
Type of access (mark one): 2x4 vehicles 4x4 only foot only**

**If foot access only: Distance in miles: _____ Approximate hiking time: _____

-- Does access to this site require crossing private or tribal lands? YES NO

-- Please describe any restrictions to public access:
- 9) **Please list below (or on a separate sheet) the material type and dimensions of each component proposed to be added, modified, or repaired.**
- 10) **Was a site visit completed? Yes No**
If Yes, please list personnel that attended and date. April 2012 with Joe Currie

ARIZONA GAME AND FISH DEPARTMENT **TREE CLEARING/REMOVAL WORKSHEET**

PROJECT TITLE: _____

- 1) What is the estimated acreage of the project?**

- 2) How are the trees going to be cleared? (agra axe, chain saw, grubbing, push, chaining):**

- 3) What is the estimated number of trees per acre?**

- 4) Describe trees to be cleared (species, estimated diameter, single stem, multi-stem):**

- 5) Describe terrain (slope, soil type, rocks)**

- 6) Please list any special land management status for the project site (e.g. Wilderness, National Park, National Monument). If private land, list landowner.**

- 7) Please provide the following information about access to the proposed site:**
Type of access (mark one): 2x4 vehicles 4x4 only Foot only**

**If foot access only: Distance in miles: Approx. hiking time:

Does access to this site require crossing private or tribal lands? YES NO

Is the site relatively accessible for tree removal equipment? YES NO

Please describe any restrictions to public access:

ARIZONA GAME AND FISH DEPARTMENT

VOLUNTEER HOURLY RATES AND CLASSIFICATIONS WORKSHEET

PROJECT TITLE: _____

The value of volunteer labor should be calculated at the hourly rate of an employee doing similar work, or using hourly rates from the Arizona Department of Administration's Human Resource web site, plus a standard ERE rate of 35%. http://www.hr.state.az.us/ClassComp/CC_Job_Titles_with_Ranges.asp

\$0.445/mile should be the calculation used for mileage.

Water Development	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$14.14	
Habitat Restoration and Clean Up	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$14.14	
Fisheries	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$14.14	
Nongame Branch Project	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$14.14	
Misc/office work	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			varies	
Community Services	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$7.44	
Events and Other	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$14.14	
Research Branch	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$14.14	
Wildlife Area Hosts	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$17.44	
Education Programs	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$16.07	
Totals				