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

Game Branch / HPC Project Number:	11-503
Possible Funding Partners:	

PROJECT INFORMATION

Project Title: Pronghorn Antelope Fawn Enhancement Project-Region V

Region and Game Management Unit: Region V; Units 35A/B

Local Habitat Partnership Committee (LHPC):
SEAZ-HPC

Was the project presented to the LHPC?
YES[X] NO[]

Has this project been submitted in previous years? YES[] NO[X]
If Yes, was it funded? YES[] NO[] → HPC Project #:

Project Type: Predator Control

Brief Project Summary:
Removal of coyotes to include aerial gunning, trapping and associated hunting practices in GMU 35A/B grassland habitats to improve the recruitment rates for Pronghorn Antelope and Desert Mule Deer populations.

Big Game Wildlife Species to Benefit: Pronghorn Antelope, Desert Mule Deer

Implementation Schedule (Month/Day/Year):

Project Start Date: February 15, 2012

Project End Date: May 15, 2014

Environmental Compliance:
NEPA Completed: YES[X] No[] N/A[]
Projected Completion Date: _____

State Historic Preservation Office - Archaeological Clearance:
YES[] No[] N/A[X]
Projected Completion Date: _____

Arizona Game and Fish Department EA Checklist: N/A[]
To be Completed by: Arizona Game and Fish Department
Projected Completion Date: January 31, 2012

PROJECT FUNDING

Special Big Game License Tag Funds Requested:	**$** 24,300.00 annually for 3-years
Cost Share or Matching Funds:	**$** 0.00
Total Project Costs:	$ 24,300.00 annually for 3-years (total project cost-$72,900.00)

PARTICIPANT INFORMATION

Applicant (please print): Brad Fulk-Field Supervisor AZGFD	**Address**: 555 N. Greasewood Rd. Tucson, AZ 85745	**E-mail**: bfulk@azgfd.gov
Telephone: 520-400-4575		**Date**: August 30, 2011

AGFD Contact and Phone No. (If applicant is not AGFD personnel):

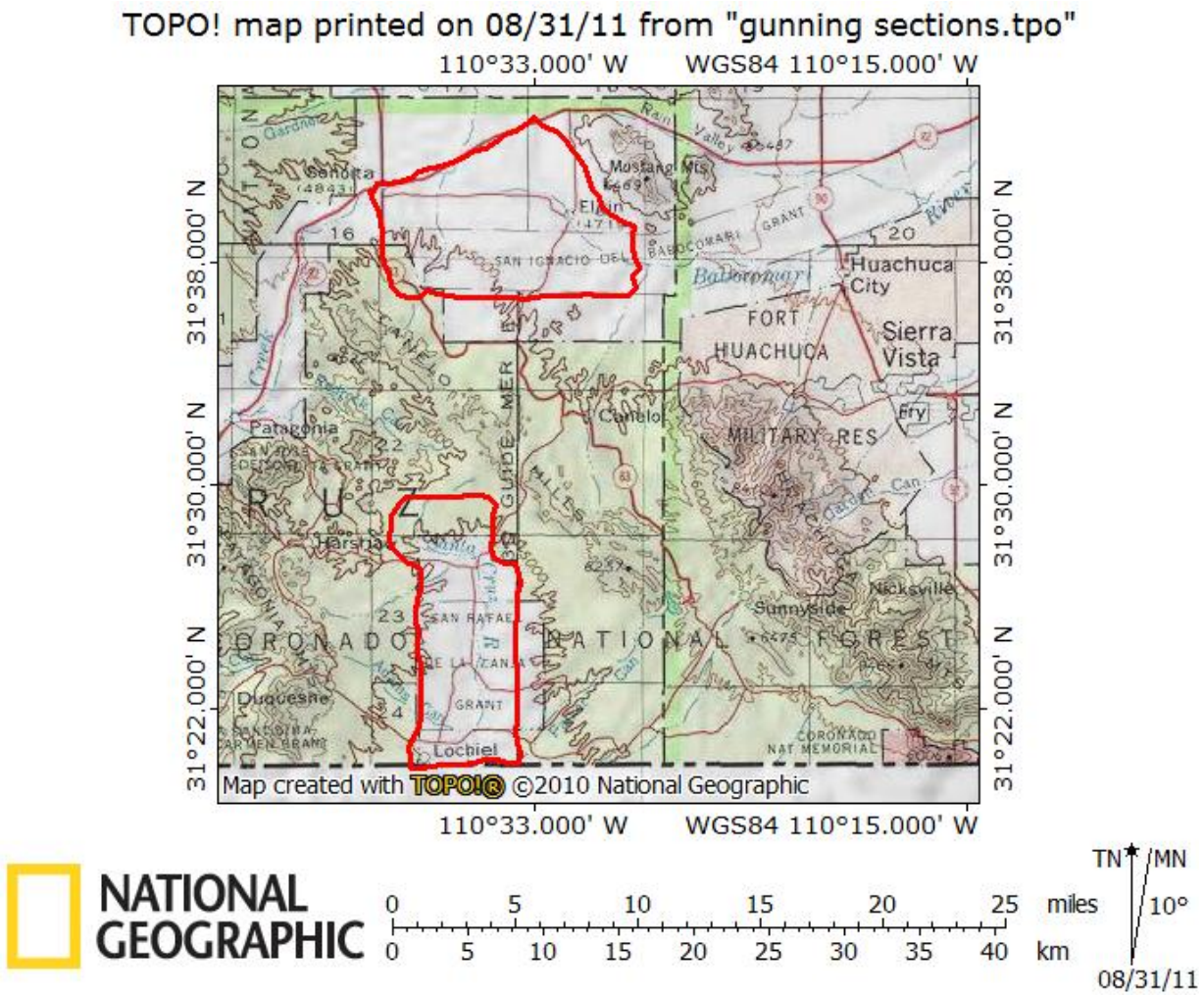
Project has been coordinated with: Arizona Antelope Foundation, Arizona Deer Association, Mule deer Foundation, SCI-Tucson Chapter, AZGFD Game Branch, USFS-Sierra Vista Ranger District, BLM-Sierra Vista Field Office, Arizona State Land Department, Arizona State Parks, Private Landowners and Lessees.

NEED STATEMENT – PROBLEM ANALYSIS:

History:

Pronghorn Antelope have continuously occupied the project area having been documented as early as 1851 by the Graham and Bartlett parties (Davis, 2001). Early prospectors in the Patagonia Mountains frequently observed pronghorn right up to the oaks in the late 1850's". The following information summarizes the trends and distribution of pronghorn herds in the San Rafael Valley and the grasslands south and east of Sonoita, Arizona.

Desert Mule Deer herds were also more abundant in the high desert grassland of Cochise/Santa Cruz Counties and the adjacent transition zones in the oak woodlands. Similar to pronghorn in the units, the mule deer population trends has also declined over the past 8 years. (see graph below)



The Elgin area (north) and San Rafael area (south) treatment boundaries are identified in red.

Babocomari River and Elgin area:

Pronghorn were common on the 40,000 acre Babocomari Ranch, located between the Huachuca and the Mustang Mountains. The lower foothill plains of the Mustang's were occupied by resident herds when purchased by Frank Brophy senior in 1935. These herds traveled the valley, east and west and occupied areas on the east and west range of Fort Huachuca. By 1949, there were just 4 pronghorn remaining on the west boundary of Ft. Huachuca. The Arizona Game and Fish Department (AGFD) and Fort Huachuca began restocking efforts in 1949 to augment the diminishing herds. Today, based on 2011 aerial surveys, the numbers total approximately 16 animals on the Babocomari and Rosetree Ranches which surround the west and south side of the Mustang Mountains. During the

2011 summer surveys, one (1) single doe pronghorn was observed on the west range of Fort Huachuca.

Although habitat has remained intact enough to continuously support a viable pronghorn population, collectively habitat conditions have degraded much since pre-European settlement. The major habitat issues are, as in most pronghorn habitat; shrub invasion and habitat fragmentation.

In 1851, John Graham's boundary survey party arrived at the Babocomari River south of the Mustang Mountains. Graham wrote "The valley of the Babocomari, is here from a quarter to a half a mile in breadth, and covered with a luxuriant growth of grass. The stream, which is about twenty feed wide, and in some places two feet deep, winds through this valley, with willows, and large cotton-woods trees growing along its margin (Davis, 2001.)

Since that time shrub invasion, due to several periods of overgrazing followed by nearly a century of fire suppression (Bahre, 1991), has decreased habitat quality for pronghorn which prefer grasslands "having a composition of 10-20% forbs with woody shrubs less than two feet in height providing 5%-35% of the cover. Ground cover in grasslands frequented by pronghorn averages 60-80% grasses and forbs, with 20-40% of the land being bare ground or populated by annuals" (Brown, 2007.) The stature of the vegetation should be low, with grasses, forbs, and shrubs averaging between 10 and 18 inches in height.

The Arizona Game and Fish Department last conducted a statewide pronghorn habitat assessment in 1996. During this assessment, it was noted that habitat quality was of concern due to shrub invasion, loss of habitat connectivity due to barriers, and need for additional water development as primary habitat concerns. Shrub invasion continues to be a major concern in the immediate area, as does fragmentation and water availability.

Cattle have grazed the Babocomari at least since the time that the Mexican land grant was established in 1832, supporting as many as 40,000 head. These cattle were abandoned with the ranch in 1849 when Apache depredations became intolerable. Wild cattle continued to graze the Babocomari for some years but probably had little impact on the range compared to the region-wide overstocking event that occurred in the 1870's coincident with the introduction of the railroads (Bahre, 1991.) Since the early 20th century, grazing practices have improved and stocking rates have decreased to sustainable levels but fire has not returned to the pre-settlement cycle of 5-7 year burning that maintains a vegetative condition most conducive to pronghorn. The Babocomari River, always ephemeral, is now largely dry, necessitating water developments throughout the area to meet pronghorn water requirements. The Sierra Vista Habitat Partnership Committee (SVHPC) continues to evaluate gaps in water distribution and will continue to improve water availability and factors to improve pronghorn habitat.

The area has been identified as one of 7 priority population areas by the Arizona Antelope Foundation (AAF) and the Southeastern Arizona Grassland Collaborative Workgroup (SEAGrass). These groups will support grassland restoration and habitat enhancement projects in the 7 priority areas over projects in other areas (SEAGrass minutes, May 31, 2011.)

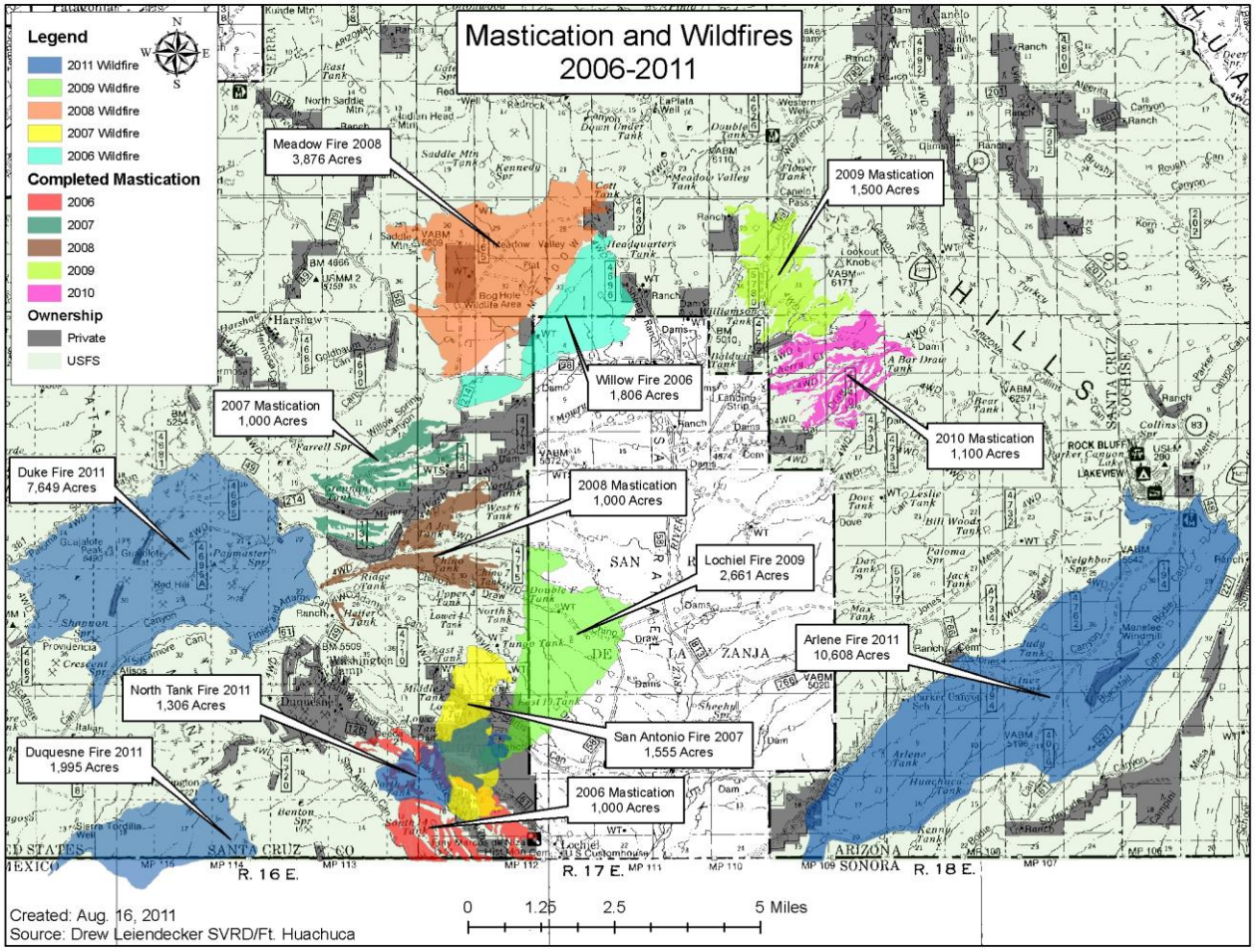
In recent years, the HPC process and EQUIP grants have been successfully used by the Rosetree and Babocomari Ranches to reduce shrubs density, thus restoring 1650 acres of once native grasslands with 1100 additional acres treat under current contract. Water developments, specifically for pronghorn and mule deer have been developed on both ranches, and in October 2010, the AAF modified two key miles of fence on the allotment boundary to pronghorn standards, thus re-establishing the historic open corridor between both ranches. A work project is scheduled in October 2011, to continue project efforts for grassland habitat and water restoration in the area in cooperation with AAF, volunteer groups and area landowners. Once completed, the work will improve water availability and habitat quality for both pronghorn and mule deer in this area.

San Rafael Valley:

Grassland habitat in the San Rafael Valley exceeds 44,000 acres of which 60% is USFS property with the remaining 40% private property controlled by five ranches. This International Border area is secure from urbanization due to a mixture of public land, open space conservation easements and continued cooperation from landowners. Pronghorn populations were extirpated by 1945, which led to AZGFD pronghorn reintroductions in 1950. Thereafter, populations reached their high in the mid-1960's, when Wildlife Manager John Carr reported more than 100 animals

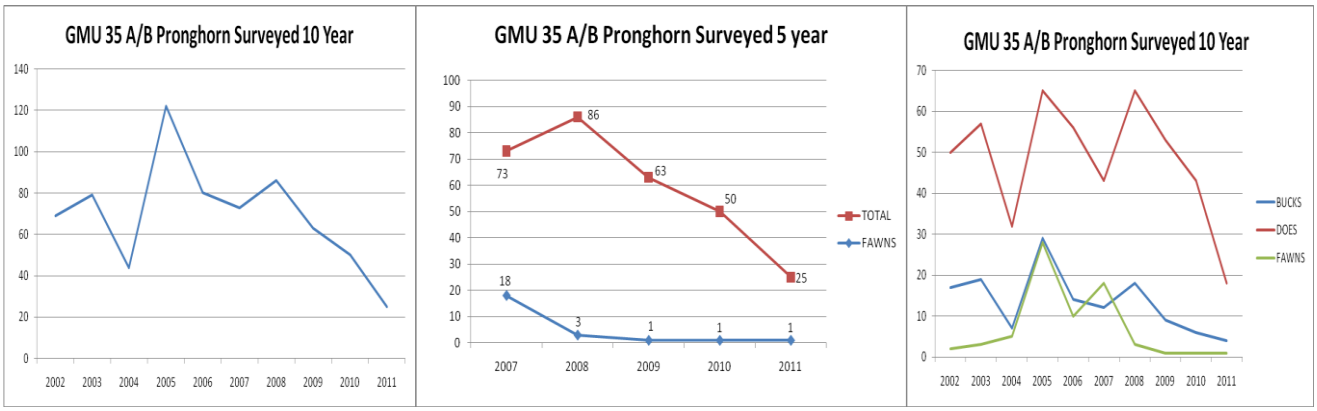
distributed from the Vaca Ranch south to the Sharp Ranch, east to the Parker Canyon steppes and further east on the Campini Mesa. During 2011 surveys, just 9 animals remained on the northwestern side of the valley. Travel corridor connectivity is less of a concern throughout the valley; however juniper encroachment is fragmenting portions of open grassland and is recognized as a management issue. Currently, the total loss of the remaining pronghorn population and the significant decline in the mule deer population is of greatest concern. On the southwest end of the Valley lies the US-Mexico Boundary. This boundary consists of "Normandy-style" vehicle barriers, which are sections of criss-crossed railroad track which spans the entire valley from east to west intended to prevent illegal automobile crossings. A combination chain link and other materials joined together on the Mexico side of the automobile barrier fence functionally stop all pronghorn and mule deer from crossing into Sonora, Mexico. Like pronghorn, historically the mule deer could freely cross into Sonora, Mexico resulting in negative impacts and was a factor in the decline of the resident herd. On Campini Mesa, located in the southeastern portion of the Valley, as many as 27 Pronghorn used the grassland mesa and commonly traveled south into Sonora Mexico. This was during a time of higher than normal military activity in Sonora in the late 1990's and coincidentally, the populations of both pronghorn and mule deer on the US side noticeably declined. The fence is now a permanent barrier to the travel of both species and is considered a net benefit stopping uncontrolled mortality in Sonora if new supplemental releases were to occur. Currently there are 9 pronghorn remaining in the valley. It is also worth noting, a retired Wildlife Biologist living in the area has conducted personal ground surveys of pronghorn for the past two years and confirmed aerial survey efforts in both areas.

The Coronado National Forest-Sierra Vista Ranger District is conducting Manzanita brush mastication projects on the eastern and western boundaries of the north end of the Valley and plan to follow up with prescribed burns as identified in the Firescape Plan for the Forest. In addition to the active vegetation projects, several fires have occurred in the valley totally approximately 8000 acres and improving the habitat quality in those areas. (see 2006-2011 USFS project and fire map attached)

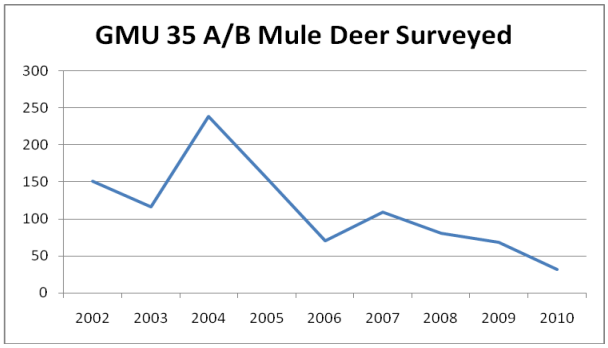


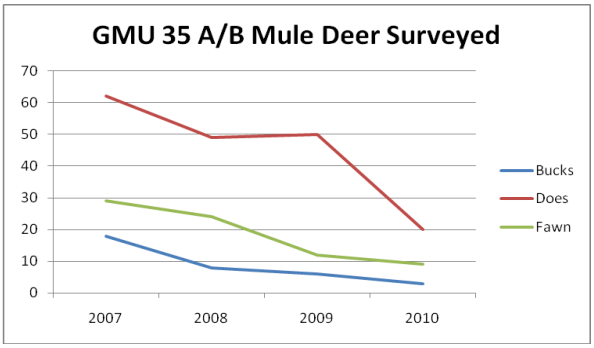
The Department's Pronghorn Herd Management Plan for GMU 35A/B is found in the Arizona Statewide Pronghorn Management Plan. This comprehensive plan gives a detailed description and identifies the Department's goals for pronghorn management statewide and identifies the post-hunt adult pronghorn population and desired annual harvest. The 2011 surveyed population of pronghorn antelope in GMU 35A/B is 25 animals in the two areas; (9 n the San Rafael Valley and 16 in the Elgin Area). The fixed-wing surveys in both areas were confirmed for the past two years by ground surveys conducted by a retired Wildlife Biologist living in the area
of the area that resulted in exact numbers, with the exception of 3 additional fawns observed in the San Rafael Valley prior to the aerial survey in 2011. It is worthy to mention, one (1) fawn was observed in the herd of 9 animals in the San Rafael Valley, which was the only fawn observed during the fixed-wing survey. Based on the current population status, there will be no pronghorn hunt recommended in the future as management practices are initiated to recover pronghorn and mule deer populations in the treatment areas.

Below are the specific Department pronghorn management goals and objectives which trigger management practices and associated procedures. The Department will need to exercise the options identified below in the Objectives and Species Specific Strategies in attempt to recover pronghorn populations in GMU 35A/B. Over the past four (4) years in GMU 35A/B, the pronghorn population has recruited an average of 4 fawns:100 doe. The results of long term low recruitment rates results in a rapidly declining population. Genetic concerns result in the low number of mature bucks (currently pre-hunt number=4) and declining doe numbers in the herd. In 2011, the U35A/B pronghorn population reached a low, a level well below game management guidelines. The graph below illustrates the need for immediate management activities in attempt to increase recruitment and genetic diversity in the population using predator control methods for three consecutive years for the two populations as other habitat management practices continue and supplemental pronghorn are released in the two areas are planned.



Coincidentally, the desert mule deer population dynamics also reflect similar declining trends. The number of animals observed during recent survey efforts is problematic. When considering only ratio data, one can be easily mislead regarding population status. The GMU 35A/B mule deer population has also declined significantly as illustrated by reduced observations rates and sportsmen's harvest. (see mule deer graphs below) The predator control practices may also provide a benefit for the mule deer herds and result in a potential for increased recruitment/survivability within the treatment areas.





A supplemental transplant of between 50-80 pronghorn will occur in February 2012. Prior to the transplant, coyote control practices will be in place to include aerial gunning, trapping and sport hunting of the described areas/grassland habitats to support increased recruitment. These supplemental animals will be released into habitat treatment areas and remaining historic core grasslands habitat within the two areas; San Rafael Valley and the Elgin area, specifically the Babocomari and Rosetree Ranches. A determined B:D ratio and number of animals released/site will be pre-determined prior to release, and selected animals will be fitted with GPS radio collars in order to track future movements and document issues that may provide insight for future management issues and/or needs.

PRONGHORN MANAGEMENT GUIDELINES

Goal

Increase pronghorn populations to levels that provide diverse recreational opportunities.

Objectives

1. Increase the statewide population of adult pronghorn.
2. Maintain annual harvest at ≥500 pronghorn.
3. Provide recreational opportunity for ≥1,000 hunters per year.
4. Provide ≥4,500 hunter days per year.
5. Maintain existing occupied habitat, with emphasis on retention of medium and high quality habitat.
6. **Restore the historical range in Arizona by repopulating through translocations.**

Species-Specific Strategies

1. Manage and enhance habitat through partnerships with public agencies, property owners, lessees, and conservation organizations.
2. Improve conditions of declining or low-density herds through **research**, **conservative hunt management**, **supplemental transplants**, and **predator management.**
3. **Establish self-sustaining pronghorn populations at all transplant sites.**
4. Identify important habitats for populations and determine where protection and improvements are possible, in cooperation with land management agencies, property owners, and lessees.
5. Use population and hunt modeling to assist in permit recommendations.
6. Provide hunter recreation that stresses the quality of the hunting experience.

Procedure 5: To determine the need for predator control to increase the proportion of fawns in the population.

A. Predator control for the benefit of pronghorn populations may be considered in hunt units where the recruitment rate is less than 20 fawns per l00 does for two consecutive years. An assessment of grazing influences on fawn survival should be made before predator control is recommended. Written landowner permission is needed for private or leased land before planning can proceed. Site specific planning must be done in accordance with the Commission's Predation Management Policy (DOM A2.31).

B. Field Operations personnel will submit their predator control recommendations to Game Branch by evaluate recommendations and set priorities on the basis of need, control methods to be used, and funds available. Approved recommendations will be forwarded to the USDA, Wildlife Services, for an action program. Predator control should be conducted for 3 consecutive years.

PROJECT OBJECTIVES:

1) Increase the pronghorn fawn:doe ratio to at least 40 fawns:100 does during the last two years of the project.

2) Increase the Unit 35A/B post hunt adult pronghorn antelope population to 125 animals in 2014.

Standard summer and early fall surveys will be conducted to assess pronghorn fawn:doe ratios as well as total pronghorn antelope observed. Mule deer surveys will be conducted in the winter months and the population and fawn:doe ratios will be monitored during predator control treatments.

Throughout the duration of the project a nearby game management unit (34B) of similar habitat type and quality will be used as a control area for both species. The control area is directly to the north of SR. 82 which serves as the boundary landmark between U35A and U34B. This area (U34B) will not be treated with coyote removal allowing a comparison of pronghorn fawn survival between treated and non-treated areas consisting of similar habitat and climatic conditions to assess the effectiveness of the coyote removal responses to fawn survival within respective populations.

PROJECT DESCRIPTION AND STRATEGIES:
Removal of coyotes from the two (2) prescription areas specifically to increase fawn survival in pronghorn and mule deer populations by using all available techniques identified below. This strategy will be performed for a series of three (3) consecutive years to achieve project objectives.

Aerial Gunning: Is recognized the most effective form of coyote control used by the Department to increase antelope fawn survival which has been proven in GMU's such as 21, 4 and 10 recently. This method can be very effective under the right circumstances but like other management methods, it has drawbacks. A) The most recognizable is the expense involved in the project. The current cost of aerial coyote control for this project is totals approximately $2,000.00/day factoring 4 hours of morning flight time average. This cost is prohibitive for large GMU's or large treatment areas and does not allow for the intensive removal necessary to remove an adequate number of coyotes over multiple units. B) Timing of control efforts is critical. Due to scheduling conflicts or delays caused by high winds, the removal efforts may in certain years occur too late and a large number of fawns may be lost to predation as a result. This application must be timed correctly to gain maximum benefit.

The advantage to aerial gunning is that it has been proven to be is effective on a smaller scale application vs. large game management unit applications and it can be done on USFS, BLM, and State Land in GMU 35A/B. The aerial gunning efforts will concentrate on those areas where foot hold traps cannot be used or in combination where it appears from the presence of sign that there is still a large number of coyotes remaining after the trapping effort. Pre-baiting with large domestic animal carcasses will increase the effectiveness of aerial gunning. This technique will be employed only on areas with required cooperation from landowners and near adjacent habitat types that reduce the effectiveness of the method. Two (2) efforts for each area will be employed with no less than one week between efforts. During each of the three (3) treatment years, the first aerial treatment will occur during March and the second or follow-up will occur in mid-late April prior to the fawn drop to increase survival.

Trapping: Trapping has been a historic method used to control coyotes for many years and has several advantages over aerial gunning. Trapping may be used in areas where tree density prevents the safe or effective use of aerial gunning methods. In addition, trapping is not negatively impacted by climatic factors such as wind, rain or low visibility as is aerial gunning.

The land status in GMU 35A/B is typical of many Arizona antelope herds. There are large amounts of private land interspersed with limited State Trust Land and to a larger extent BLM land in the Elgin area. Private lands are exempt from the restrictions imposed by ARS 17-301D and the use of foot hold traps to control coyotes are allowed.

This project proposes to use, as match dollars, the services of a contracted trapper to trap those private lands for two (2) months (March-May) where permission is granted during each project year. The contract trapper will supplement the aerial removal of coyotes and will be expected to use their own equipment including their vehicle, camp equipment, and foot hold traps meeting the standards set in R12-4-307. The two areas will be divided into sub units by landowner/ranch and trapped during the months of March, April or May. The contractor will be expected to run a trap lines sufficient to impact the coyote densities in the areas. A specific regimen will be identified for each trapping sub-unit within the two areas to include specific trapping guidelines to be followed.

It will be the trapper's responsibility to ensure they are trapping on those private lands where permission has been obtained for this project.

All non-target wildlife will be released immediately. No portion of any coyote taken as part of this project may be possessed unless specifically permitted or desired by the Department.

Hunting: Though the least successful method, coyotes will be removed by predator calling, sitting waterholes, as well as opportunistically. This will be done by Department personnel and volunteers, sportsman groups and other volunteers from the general public prior to and during the other methods are employed.

PROJECT LOCATION: see previous map

Elgin/Babocomari:

Township 20 south, range 17 east, sections 12-15, 21-22, 23-24 (North half ONLY), 34-36
Township 20 south, range 18 east, sections 7-8, 16-22, 26-28, 30-35
Township 21 south, range 17 east, sections 1-3, 11-12
Township 21 south, range 18 east, sections 2-11

Total: 43 Sections

San Rafael:

Township 22 south, range 17 east, sections 27-29, 31 (East half ONLY), 32-35
Township 23 south, range 17 east, sections 2-5, 6-7 (East half ONLY), 8-17, 21-28, 33-36
Township 24 south, range 17 east, sections 1-4, 9-16, 21-24 (North half ONLY)

Total: 48.5 Sections

LAND OWNERSHIP AT PROJECT SITE (Please state specifically if PRIVATE PROPERTY and provide landowner's name):

San Rafael Contacts:
Bob Hudson - Vaca Ranch
Ross Humphries - San Rafael Ranch; 520-400-1446 rossh@rionuevo.com
Sidney Spencer – Lazy J Ranch
Zay Hartigan - Ki He Kah Ranch
Bud Bercich

Elgin Contacts:
Ben Brophy - Babocomari Ranch
Rukin Jelks III – Diamond C Ranch
Bill Brake/Al Wilcox - Rose Tree Ranch
Bill Shrock - Elgin

USFS-SierraVista Ranger District
Bureau of Land Management- Tucson Field Office
Arizona State Land Department
Arizona State Parks

IF PRIVATE PROPERTY, IS THERE A STEWARDSHIP or LANDOWNER AGREEMENT BETWEEN THE LANDOWNER AND THE DEPARTMENT?
YES[X] NO[]

Agreements to be attached at a later date.

HABITAT DESCRIPTION:
Gentle rolling hills bisected by small cuts and riparian areas to include the Santa Cruz River and the Babocomari River drainages forming the most proximate riparian habitats. The surrounding grasslands are dominated by blue grama, with tobosa, three-awn, and side oats grama. Shrub species diversity includes cat claw, whitethorn acacia, false mesquite, yucca, cholla and prickly pear cactus species, with invasive mesquite and Manzanita, cedar and juniper species in the transitional breaks in adjacent habitat.

ITEMIZED USE OF FUNDS:

Special Big Game License Tag Funds: **$24,300.00** annually for three (3) years.

Below is an itemized account for total costs above.

Treatment Areas: Elgin/Babocomari and San Rafael

Aerial Gunning Costs:
Elgin Area: Total Sections to be flown (twice) =43 sections at a treatment rate of 7 sections/hour at $500.00/hour=12 hours total or 3 days/year for an annual cost of **$6000.00.**

San Rafael Area: Total Sections to be flown (twice) =48.5 sections at a treatment rate of 7.6 sections/hour at $500.00/hour=12.7 hours total or 3.2 days and an annual cost of **$6300.00.**

Aerial gunning costs total = $12,300.00 annually (3-years cost $36,900.00)

Trapping Costs:
The cost of **$12,000.00** annually reflects the cost for trapping the two areas at the rate of $6000.00/month for a contract trapper for two (2) months/year to be used during March, April or May beginning in 2012 ending 2014. **(3-year cost $36,000.00)**

Total project cost = $24,300.00 annually; (3-year cost =$72,900.00)

Match contributions: $0.00

*Costs are calculated using 4 hours of flight time/day beginning at sunrise.
*Ferry time to sites is calculated at into the cost estimate.

Private Landowners/Lessees will be required to sign a USDA-APHIS cooperator agreement and a cooperators agreement by the AGFD in support of the project. Landowners will also be asked to contribute $250.00 each annually as match dollars annually in project support for the cost to aerial gun their property/lease.

LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:
Arizona Game and Fish Department – Technical advice, project planning, coordination and financial contribution

Arizona Antelope Foundation – Technical advice and support, funding partner

Arizona Deer Association – Funding support

SCI-Tucson Chapter – Funding support

Mule Deer Foundation – Funding support

USFS; Sierra Vista Ranger District – Project support and potential partner in the future Pronghorn Management Plan

BLM-Tucson Field Office – Project Support and potential partner in the future Pronghorn Management Plan

Arizona State Parks – Project support

Arizona State Land Department – Project support

USDA-AHPIS Director; Dave Bergman – Contract for services and technical support

Private Landowners/Lessees – Project support and possible financial match contributions (listed above).

PROJECT MONITORING PLAN:
Standard summer and early fall surveys will be conducted to assess pronghorn antelope and winter surveys will be conducted for mule deer. In each case, the fawn:doe ratios and total population observed and associated population estimates will be determined annually by AZGFD employees and compared to past survey data.

Throughout the duration of the project a nearby game management unit of similar habitat type and quality will be used as a control area. The control area will not be treated with coyote removal allowing a comparison of fawn survival between treated and non-treated areas under similar habitat and climatic conditions to assess the effectiveness of the coyote removal efforts on fawn survival for both species.

Upon notification of a supplemental transplant source, Region V will coordinate with the Game and Research Branches to formalize a monitoring plan to include fifteen (15) released pronghorn fitted with GPS tracking collars (pending out of cycle HPC Grant Proposal approval). There is an ongoing effort to plan for the potential release which includes developing a formal monitoring plan to collect data to support future management needs of the populations. The coordinated monitoring plan will be finalized by the AZGFD Game and Research Branches by the end of December 2011.

PROJECT MAINTENANCE:
N/A

PROJECT COMPLETION REPORT TO BE FILED BY:
Brad Fulk-Field Supervisor; AZGFD - Region V

WATER DEVELOPMENT PROJECTS (*see attached worksheet*):
N/A

TREE SHEARING (AGRA-AXE, PUSH) PROJECTS (*see attached worksheet*):
N/A