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

HPC Project Number:	19-302

PROJECT INFORMATION

Project Title: Unit 18A Habitat Enhancement Project

Region and Game Management Unit: Region 3 GMU 18A

Local Habitat Partnership Committee (LHPC):	**Was the project presented to the LHPC?**
• Kingman HPC	**YES**[X] **NO**[]

Has this project been submitted in previous years? YES[] **NO**[x]

Project and Action Type: Habitat enhancement through mechanical tree grinding, water distribution and WL friendly fence replacement.

Brief Project Summary: This multi-year project will enhance habitat on a landscape scale by addressing the need for grassland restoration in historic grassland, browse release in overstocked juniper/pinyon woodland, water development, replacement of old sheep fence with wildlife friendly fence and fawn enhancement where practical. This is a multi-directional (habitat, water, fawn enhancement, and connectivity) approach to quickly enhance limited or restrictive habitat.

Primary Big Game Wildlife Species to Benefit: Deer 60%, Pronghorn 20%, and Elk 20%

Implementation Schedule (Month/Day/Year):

Project Start Date:
As soon as the Department approves the work and Agreements are fully executed. (ASAP)

Project End Date: 06/15/26

Environmental Compliance:
NEPA Completed: Yes[] No[] N/A[NA]
Completion Date or Projected Completion Date: NA- ASLD Permit

State Historic Preservation Office - Archaeological Clearance: *(Provide Attachment)*
Yes[] No[] N/A[x]
Completion Date or Projected Completion Date: ***Treatments meet SHPO exemption based on tree canopy/ground cover surveys- Department is coordinating closely with ASLD and SHPO on this project and it is ready for implementation.***
Arizona Game and Fish Department EA Checklist:
Yes[x] No[] N/A[] EAC#'s: M19-0828073046 & M19-0717072058
To be Completed by: ~~AZGFD (Wade Zarlingo)~~
Completion Date or Projected Completion Date: ***Two EAC's have been submitted, approval by 11/1/19 and 12/1/19***

PROJECT FUNDING

Special Big Game License Tag Funds Requested:	**$** 500,000/year (MD, PR, ELK)
Cost Share or Matching Funds:	$ 500,000/year minimum
Total Project Cost:	$ 5,000,000+ over 5 years

PARTICIPANT INFORMATION

Applicant Name:	**Address**:	**E-mail**:
Wade Zarlingo	2155 E. Aspen Street	wzarlingo@azgfd.gov

Telephone: (928) 368-3203	Cottonwood, AZ 86326	**Date**: 8/22/2019

NEED STATEMENT – PROBLEM ANALYSIS:

Arizona Game and Fish Departments Game Management Unit 18A is broken into two main habitat types, Juniper/Pinyon uplands and grassland valleys. Both habitats are being adversely impacted by overstocked woody vegetation.

Within the historic grassland valleys, juniper have encroached into former grasslands and savannahs, resulting in smaller, more fragmented blocks of grassland and reduced diversity and total production of grasses, forbs and shrubs. Shrub and woodland invasion into historic grasslands is identified as an item of high importance in Arizona's State Wildlife Action Plan: 2012 - 2022, and is part of the area covered within the Northern Arizona Grassland Initiative (NAGI) and the Central Arizona Grasslands Conservation Strategy area (CAGCS)

Overstocked woody vegetation along with drought conditions in the Juniper/Pinyon uplands has reduced the availability of browse to mule deer and antelope across northern Arizona. Historically Game Management Unit (GMU) 18A issued 2,000 mule deer buck only rifle permits (1980) currently the Department issues 350 buck only mule deer permits. Allocation of mule deer tags are a direct reflection of population size and habitat conditions that drive populations. Like mule deer, pronghorn numbers have also dropped steadily over the past 30 years, During surveys in 1990, there were 700 pronghorn observed on survey. That same survey in 2019 detected on 80.

The Cross Mountain Ranch, in the heart of the project area, historically ran sheep as part of their livestock operation and all boundary fences and interior fencing are old sheep fencing that creates a barrier for pronghorn movement. The Cross Mountain Ranch Allotment controls a little over a Township which equates to approximately 36 miles of boundary fence and 6 miles of interior fencing that all need replacing for wildlife.

Perennial, accessible sources of water are a key component of wildlife habitat. For many animals, successful breeding is directly or indirectly related to water (Bolen and Robinson 2003). Increasing the amount of water available to wildlife has been a common habitat enhancement practice in Arizona and other western states (Rosenstock et al. 1999). In 2001, Koehler et al. completed Region III's water inventory in order to prioritize critical waters (Koehler et al. 2001). Unit 18A is arid, containing no permanent streams or rivers, and almost no wetlands or riparian areas. Therefore, wildlife are largely supported by developed waters. Through analysis, the Department has identified the need to increase perennial water distribution at 5 locations within or in very close proximity to the proposed project footprint to compliment the habitat immediately post treatment.

PROJECT OBJECTIVES:

Historic Grassland:

The purpose of this project is to remove juniper trees that have invaded into what was formerly grassland habitat in order to restore and enhance habitat for mule deer, pronghorn antelope, and other grassland obligate wildlife species including gunnison prairie dogs. It has been reported that as few as 2 trees per acre reduces the use of that site by pronghorn antelope and that only moderate use is made of areas with areas that have on average 15 trees per acre and only limited use is made of areas with 30 or more trees per acre.

Pinyon/Juniper Uplands:

This proposed project would address several forest health issues. Reducing tree densities in the project area will result in a variety of benefits. The first is the under story browse and herbaceous species growth will be stimulated. This will improve the vigor of the plants that will yield a higher nutritional benefit for the species that feed on them. Higher nutritional benefits will help eventually improve the health of wildlife species mainly deer and elk. Also, increased herbaceous cover will trap sediment increasing the health of the watershed and reduce the effort needed to remove accumulated sediment in earthen tanks. The overall goal of these vegetation projects is to increase available forage by reducing tree densities. This project will remove most trees in deep soils to create small grassland openings, and thinning woodlands back to open the canopy to stimulate browse and herbaceous cover.

Encroachment of these species is only part of the problem. The density of these species is at the point where overall forest health is an issue and catastrophic fire is a potential threat. Mechanical treatments that reduce the density of these tree species will help return the forest to a healthier state. This healthier forest includes better production of the understory vegetation including browse and herbaceous species that are important food sources for many wildlife species.

The frequency of fire over the last century has allowed the different tree species to become the dominant vegetation throughout this entire area. Even though browse is still present in the project area, plant vigor and density is low. Annual leader growth is suppressed compared to browse plants found in areas where tree density is much less. This project will help improve browse plant density and vigor.

Deer numbers in GMU 18A have dropped steadily since the late 1980's mostly due to drought and the reduction of browse plants. Prescribed fire would be another alternative but ceanothus and cliffrose can be negatively impacted by fire, especially with the high fuel loads that are currently within the proposed treatment area. A historic continuous stand of this important browse is now a dense overstocked stands of juniper and pinyon pine. Any improvement on the browse condition in Unit 18A will benefit future deer numbers.

Number of acres that will be treated is difficult to determine due to undetermined secured funding and actual treatment costs. Currently project bids within the Unit 18A Habitat Enhancement range from $73/acre to $142/acre depending on tree density and ground conditions (rockiness). **Using an average treatment cost of $107.50/acre over the 5 year life of the project at the full requested funding amount we would treat a minimum 46,500 acres.**

The fencing objective would be to replace 20 miles of boundary fence with wildlife friendly fencing, the removal of the interior sheep fence and installation of interior pasture fence that would better facilitate proper livestock management and pronghorn connectivity.

All wildlife will benefit from the increased distribution of perennial water. Mule deer, pronghorn, elk, and javelina are all present within GMU 18A. The five prioritized water will provide the permanent availability of water to wildlife that currently can only be utilized seasonally when precipitation events occur. The nearest waters are 1.5 to 3.0 miles away, but they do not hold water year round.

PROJECT DESCRIPTION AND STRATEGIES:

The objective in historic grassland habitat is to remove a majority of recent juniper trees while retaining large old growth junipers with a diameter of 16 inches or greater 12 inches above the root collar. The treatment will be completed using a drum grinder attached to rubber tired equipment with less than 4 psi ground pressure. The drum grinder chips up the trunk of the tree leaving the branches that holds more soil moisture creating a microclimate that is conducive to the production of cool season grasses and forbs. In areas that contain deeper soils associated with flat topography the majority of the trees will be removed, with the exception of obvious bedding trees which will result in approximately one mature trees being left per acre.

The objective in pinyon/juniper uplands, were shallow and rocky soils occur, 10-20 clumps of mature trees will be left per acres, to provide escape and bedding cover for deer and elk. The more rocky soil areas within the project area support the majority cliffrose and ceanothus. Focus within the browse release areas will be on ridge tops and south facing slopes. There will be no mechanical treatments on slopes greater than 30%. This project will also increase the production of herbaceous species.

A total of approximately 500,000 acres fall within the priority area shown on the proposal map in GMU18A. Based on land ownership the majority of the project will be completed on Arizona State Trust Land. The Department has been working closely with the Arizona State Land Department's Range Unit Manager toward the implementation of this project, whenever possible funding will be placed adjacent to areas previously treated.

Currently compliance (EAC) and ASLD Land Treatment applications have been submitted for Cross Mountain Ranch and the Dunton Ranch covering approximately 5,700 acres of which 3,900 acres is considered browse release. The Department is also working closely with Natural Resource Conservation Service (NRCS) on these two ranches, and work to extend the current Regional Conservation Partnership Program (RCCP: CAGCS, NAGI) and include forest management practices. The extension of the 2 RCPP could potential bring an additional 2 million of NRCS money into the GMU 18A Habitat Enhancement project area.

The project will begin as soon as project is funded and an agreement is fully executed with the appropriate landowners and lessees.

Work will be performed year round with precaution given to avoiding wet roads and rutting conditions.

Removal of sheep fencing will be completed using volunteers through wildlife conservation organizations. Perimeter (allotment boundary) fencing material will be purchased through agreement with allotment holders and installation expense shared between ranches. Cross Mountain Ranch will be applying for NRCS (EQIP) assistance to realign and replace interior pasture fencing to allow for more managed livestock rotation. If the CAGCS RCPP is approved for extension, practices like this would also be allowed under that program.

The cost to install cooperative waters (2) will be shared between Department funding and the Cross Mountain Ranch. Wildlife water (3) will be solely funded through Department/HPC.

The Department will monitor pronghorn and deer numbers, as well as herd composition through annual aerial surveys. Herd composition and precipitation patterns will be evaluated with a focus on fawn recruitment within treated and non-treated areas. The Department predator biologist has been coordinated with to evaluate and implement any opportunities for fawn enhancing strategies. Other limiting factors are addressed through the habitat enhancements.

Work flow will depend on money that is secured and additional acres will be completed as external funding and additional partners becomes available.

Fence material: $100,000 over 5 years.
Water Development: $250,000 over 5 years.
Brush Management: $4,701,000 over 5 years

Tables provides general timelines, funding request and cooperators.

Year	Ranch	Private Match (Cash)	In-Kind (Fence Mod)	HPC Funds Requested	AGFD Habitat Enhancement	Partners for Fish & Wildlife Service	AZ Department Fire & Forest Management	NAGI Funds	Rocky Mountain PAC Grant	Yearly Total
2020	Dunton	70000		100000	100000	25000		35000	17400	1087400
	Cross Mountain	35000*	30000	120000	200000	40000		35000*		
	Double O			280000						
2021	Double O			480000	300000		200000			1030000
	Cross Mountain		30000	20000**						
2022	Double O			480000	300000		200000			1030000
	Cross Mountain		30000	20000**						
2023	X Bar One or Nelson			480000	300000		200000			1030000
	Cross Mountain		30000	20000**						
	Double O									
2024	Crozier (BLM)			480000	300000					1030000
	Dunton or Willow			0			200000			
	Cross Mountain		30000	20000**						
	Double O									
Project Total		100000	150000	2500000	1500000	65000	800000	70000	17400	5207400

*Funds for additional water redevelopments
**Fence Material Yearly @ $20,000

Year	Ranch	Private Match (Cash)	In-Kind (Fence Mod)	HPC Funds Requested	Cost Share Match	Percent Match	Yearly Total
2020	Dunton	100000	30000	500000	417400	52	1087400
	Cross Mountain						
	Double O						
2021	Double O			480000	500000	50	1030000
	Cross Mountain		30000	20000			
2022	Double O			480000	500000	50	1030000
	Cross Mountain		30000	20000			
2023	X Bar One or Nelson		30000	480000	500000	50	1030000
	Cross Mountain			20000			
	Double O						
2024	Crozier (BLM)		30000	480000	500000	50	1030000
	Dunton or Willow			0			
	Cross Mountain			20000			
	Double O						
Project Total		100000	150000	2500000	2417400		5207400

PROJECT LOCATION : attached maps.

LAND OWNERSHIP AT THE PROJECT SITE(S)*:* attached map; primarily private, ASLD, and BLM in the northern part of the project area.

- *Project's private land will be treated with USFWS Partners and NRCS (EQIP) funding.*

HABITAT DESCRIPTION:

The project area and the habitat surrounding the project include Great Basin Grassland and Pinyon/Juniper Woodland in Biotic Communities of Southwestern United States and Northwestern Mexico, Browne and Lowe. Ecological sites found in the treatment area include: Loamy Wash 10-14" p.z., Shallow Loamy 10-14 p.z., Clay Loam Upland 10-14" p.z., and Limy Upland 10-14" p.z.

ITEMIZED USE OF FUNDS:

Special Big Game License Tag Funds
Fence Material: $100,000 over 5 years.
Water Development: $250,000 over 5 years.
Brush Management: $4,701,000 over 5 years.

Cost Share or Matching Funds – table above

LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:
cited above

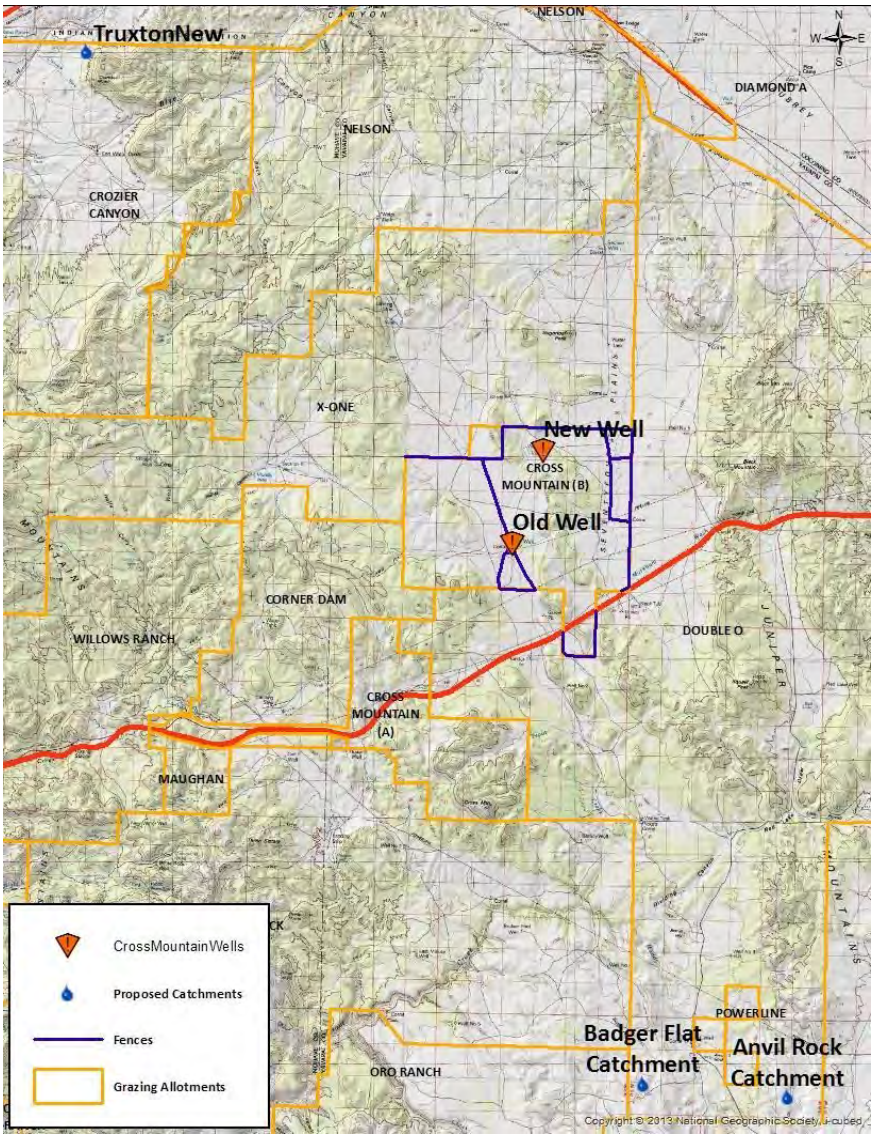
WOULD IMPLEMENTATION OF THIS PROJECT ASSIST IN PROVIDING, MAINTAINING, OR FACILITATING RECREATIONAL ACCESS?
YES[X] NO[] N/A[]

PROJECT MONITORING PLAN (how will you evaluate success?)**:** monitoring plots, antelope and mule deer survey numbers

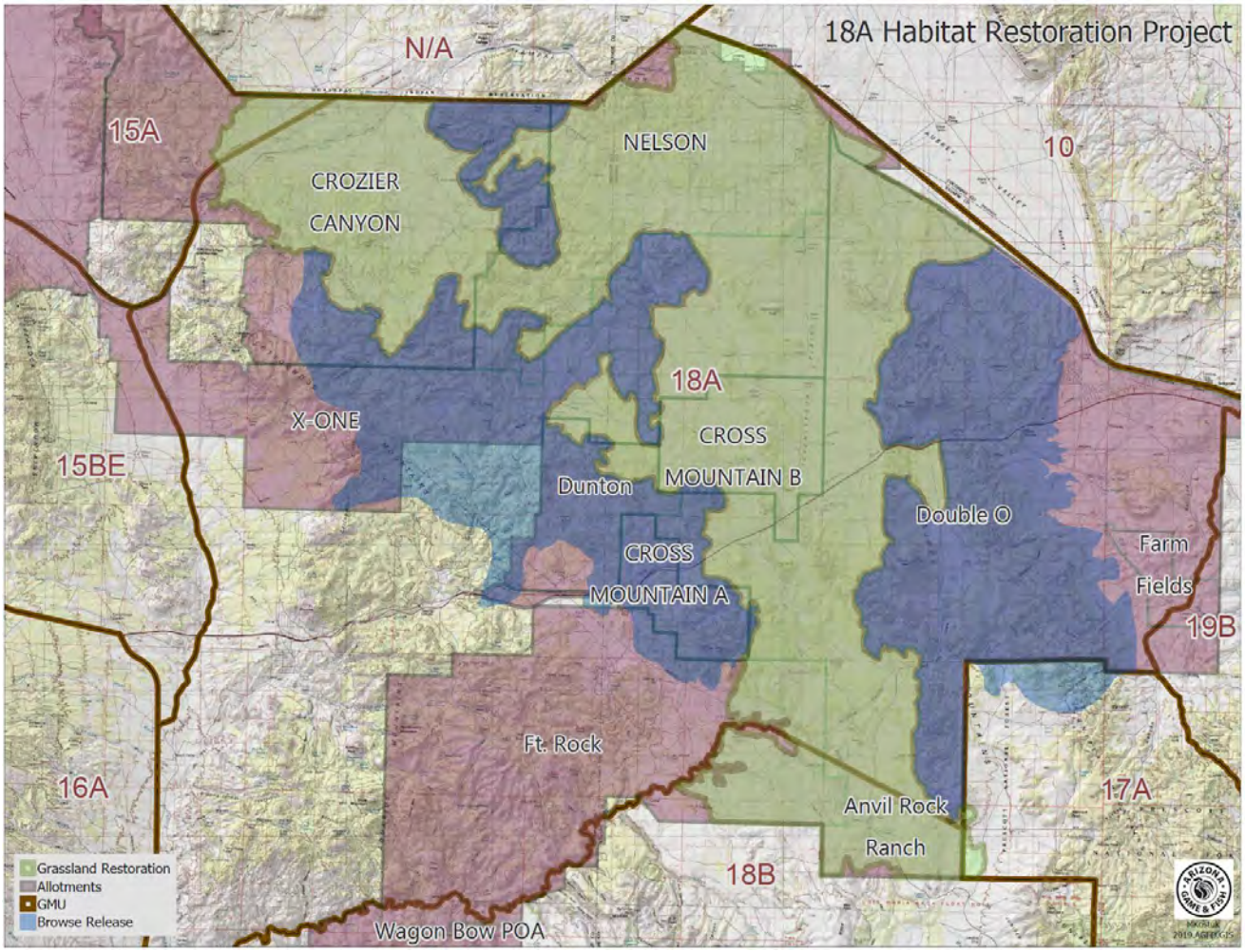
PROJECT MAINTENANCE: leasees and landowners

PROJECT COMPLETION REPORT TO BE FILED BY: RG3 LRP specialist

WATER LOCATIONS:



Grassland Restoration and Browse Treatments and Locations:


18A Habitat Restoration Project
N/A
15A
10
NELSON
CROZIER
CANYON
18A
X-ONE
CROSS
MOUNTAIN B
15BE
Dunton
Double O
CROSS
MOUNTAIN A
Farm
Fields
19B
Ft. Rock
16A
17A
Anvil Rock
Ranch
18B
Wagon Bow POA
Grassland Restoration
Allotments
GMU
Browse Release