

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

**PROJECT INFORMATION**

**Project Title:** Smith Mesa Habitat Improvement Project

**Project No. 10-305**

**Region/GMU:** FOR3/GMU 17B

**HPC:** Prescott

**Project Type:** Browse/Grassland Enhancement Using Hand Cutting

**Project Description:**

The Smith Mesa Habitat Improvement Project would seek to treat approximately 640 total acres in pinyon/juniper woodland in Unit 17B. Although previously treated in the early 1980's, much of this habitat is converting to a dense juniper woodland community that is crowding out the understory, which includes numerous desirable forage species. The proposed project is to remove invading juniper with the use of an Arizona Game and Fish Department (Department) contracted hand-cutting crew. Pretreatment efforts would include mapping the contours of the treatment inside the project area (dictated by the presence invading juniper or increasing canopy cover in the presence of valuable forage species). Slash would be dropped in place to provide microclimates to facilitate reestablishment of forage species. The proposed project would take place on the Smith Canyon Allotment of the Prescott National Forest in the central portion of Unit 17B on Smith Mesa. (Photograph 1).

Though pinyon/juniper woodlands are considered a climax community in much of the area, there is an increasing canopy cover leading to a decrease in under-story diversity and forage value. In some cases, juniper invasion is occurring in existing interior chaparral and grassland communities. While climax adapted species suffer no shortage of pinyon/juniper woodland habitats many big game species requiring the diversity supplied by disturbance (retrogression) are facing a decrease in habitat quality and diversity.

**Wildlife Species to Benefit:** Mule deer 75%, Elk 25%

**Possible Funding Partners:**

**Implementation Schedule:**

**Beginning:** February 2011

**Completed:** February 2013

**PROJECT FUNDING**

**SBG Funds Requested:** \$ 20,000

**Cost Share Funds:** \$ 84,000

**Total Project Costs:** \$ 104,000

**PARTICIPANT INFORMATION**

**Applicant:** Darren G. Tucker, Wildlife Manager,  
Arizona Game and Fish Department - Prescott  
(please print)

**Telephone:** 928-636-9130

**Address:** 5325 N. Stockton Hill Rd.  
Kingman, AZ 86409

**Coordinated with:**

**Date:**

<p>Gail Steiger, Manager, Spider Ranch 101 N. Mt. Vernon Ave. Prescott, AZ 86301 gailsteiger@msn.com</p> <p>Linda Jackson, Chino District Ranger Prescott National Forest 928-771-2230 <a href="mailto:ljackson@fs.fed.us">ljackson@fs.fed.us</a></p> <p>Wade Albrecht, Landowner Relations Program Arizona Game and Fish Department – Region III Kingman 5325 North Stockton Hill Road Kingman, Arizona, 86409 (928) 759-9301 ext. 108</p> <p>Bob Posey, Regional Supervisor Arizona Game and Fish Department – Region III Kingman 5325 North Stockton Hill Road Kingman, Arizona, 86409 (928) 692-7700</p>	
<b>Applicant's signature: Darren G. Tucker</b>	<b>Date: September 1, 2010</b>

**SEND COMPLETED APPLICATIONS TO:**  
**Game Branch**  
**Arizona Game and Fish Department**  
**5000 W. Carefree Highway**  
**Phoenix, AZ 85086**  
**[RoThompson@azgfd.gov](mailto:RoThompson@azgfd.gov)**

**WAS PROJECT PRESENTED TO THE LOCAL HPC?      YES   X        NO**

**HAS PROJECT BEEN SUBMITTED IN PREVIOUS YEARS? Yes. IF SO WAS IT FUNDED?**  
**No**



**Photograph 1**

*Photograph of Smith Mesa looking east (Photograph taken from west side of project area).*

**NEED STATEMENT/PROBLEM ANALYSIS:** Decades of pinyon/juniper invasion of grassland and interior chaparral communities in much of Arizona has contributed to a decrease in forage production and habitat quality. Countless acres that previously provided quality mule deer forage are currently suffering from this expansion. For a number of land management related reasons, pinyon/juniper communities have been lacking significant disturbance, which results in the earlier successional stages so important to numerous wildlife species. Big game species such as elk and mule deer tend to benefit from habitats where vegetation types are numerous and well interspersed creating maximized edge between habitat types. Junipers out-compete browse species for sunlight and water and ultimately lead to significantly diminished plant diversity, quantity and quality. Bates et al. (2000) established that increased understory productivity after juniper cutting resulted from greater availability of soil water and nitrogen. Chainsaw cutting of western juniper woodlands is a commonly applied practice for removing tree interference and restoring understory composition (Bates et al. 2005). By removing competing junipers from the treatment sites, the vigor of existing browse plants should increase dramatically. In addition, understory plant diversity and frequency should increase with a higher number of desirable forage species per acre. (Photograph 2)



**Photograph 2**

*Photograph of juniper encroachment on Smith Mesa. On the 1930 range map, Smith Mesa was actually classified as grassland. Pronghorn antelope were routinely observed on the Mesa up until the early 1990's. This unique area possesses an unusual blend of plant species and habitat, which make it very desirable for wildlife.*

Though pinyon/juniper woodlands are considered a climax community in much of the area, there is an increasing canopy cover leading to a decrease in under-story diversity and forage value. In some cases, juniper invasion is occurring in existing interior chaparral and grassland communities. While climax adapted species suffer no shortage of pinyon/juniper woodland habitats many big game species requiring the diversity supplied by disturbance (retrogression) are facing a decrease in habitat quality and diversity.

During the early 1980's much of Smith Mesa, approximately 2,000 acres, was treated with poison (Pickleram) to remove juniper trees. A small portion of the Mesa was also treated using hand crews with chain saws. Browse species responded to the treatments and deer thrived on the Mesa. Now unfortunately, juniper encroachment is occurring and understory forage species are becoming endangered of being lost. Smith Mesa is a very unique place among the western half of the Prescott National Forest. It possesses one of the only grassland sites south of the Yavapai Ranch. Jay Eby, Prescott National Forest retired, said the 1930 range map classified much of Smith Mesa as grassland. He also said historical records document pronghorn antelope on the Mesa and that he had personally seen antelope there up until the early 1990's.

In early 2005 the Department and Gail Steiger (Manager of the Spider Ranch including the Smith Canyon Grazing Allotment) began discussions related to habitat degradation and how to improve it. Their immediate concern was the poor condition/distribution of waters within the allotment, adversely affecting both wildlife and livestock operations. They also realized the need to manage ever increasing juniper encroachment. Funds received through the Department's Big Game Donation Fund, the HPC process and money contributed by the Spider Ranch resulted in eight earthen stock tanks receiving maintenance during the summer of 2007. These tanks now provide a series of dependable water sources within the Smith Canyon Allotment. Habitat Improvement is a priority for the Spider Ranch and they seek to provide a sustainable existence for people, livestock and wildlife.

The Smith Mesa Habitat improvement Project would seek to treat approximately 640 total acres of pinyon/juniper woodland within the 3,800 acre project area on Smith Mesa in Unit 17B. The proposed project is to remove California juniper, with the use of a Department contracted hand-cutting crew, from areas that were previously treated in the early 1980's. The treatment effort would be directed toward the creation of irregular shaped openings in the pinyon/juniper woodland while attempting to maintain species such as cliffrose, mountain mahogany, skunkbush, ceanothus and oak. Pretreatment efforts would include mapping the contours of the treatment inside the project area as dictated by the presence invading pinyon/juniper or increasing canopy cover in the presence of valuable forage resources. Slash would be dropped in place to provide microclimates that facilitate reestablishment of forage species. This project will not attempt to achieve type conversion. The goal is to retreat some previously treated areas and to cause limited retrogression in a climax pinyon/juniper community to optimize habitat value for livestock and wildlife.

Bates J., R. F. Miller, and T. S. Svejcar. 2000. Understory dynamics in cut and uncut western juniper woodlands. *Journal of Range Management* 53:119-126.

Bates J., R. F. Miller, and T. S. Svejcar. 2005. Long-term successional trends following western juniper cutting. *Rangeland Ecology & Management* 58:533-541.

#### **PROJECT OBJECTIVES:**

The primary objective of the proposed project is to improve forage quality and overall habitat conditions by removing blocks of dense and/or invading juniper trees from interior chaparral/grassland areas on Smith Mesa, Unit 17B (Photograph 3). Removal of invading juniper would be accomplished with the use of a Department contracted hand-cutting crew. The project would be accomplished while maximizing edge effect and maintaining escape cover for wildlife. This project would include efforts to utilize fallen slash as a tool to form a temporary microclimate for forage development. Adjacent areas could be proposed for treatment in future grant proposals to maximize the habitat benefit in the area.



**Photograph 3**

*Photograph of dense and encroaching juniper trees on Smith Mesa. Desirable browse species such as cliffrose can be seen in the foreground.*

**PROJECT STRATEGIES:**

Project strategies will/may include:

- Delineation of treatment sites within the project area. Treated areas will vary in size and shape with emphasis on creating the highest amount of “edge effect”, which is highly desirable to mule deer.
- Chainsaw crews will be contracted to remove approximately 640 acres of juniper within the 3,800 acre project area. Trees will be felled in place with minor lopping of larger limbs.
- The temporary accumulation of tree carcasses to provide protected microclimates for the establishment of seed beds.
- Treatment sites will focus on areas that currently have a browse component to promote more rapid colonization of opened areas.

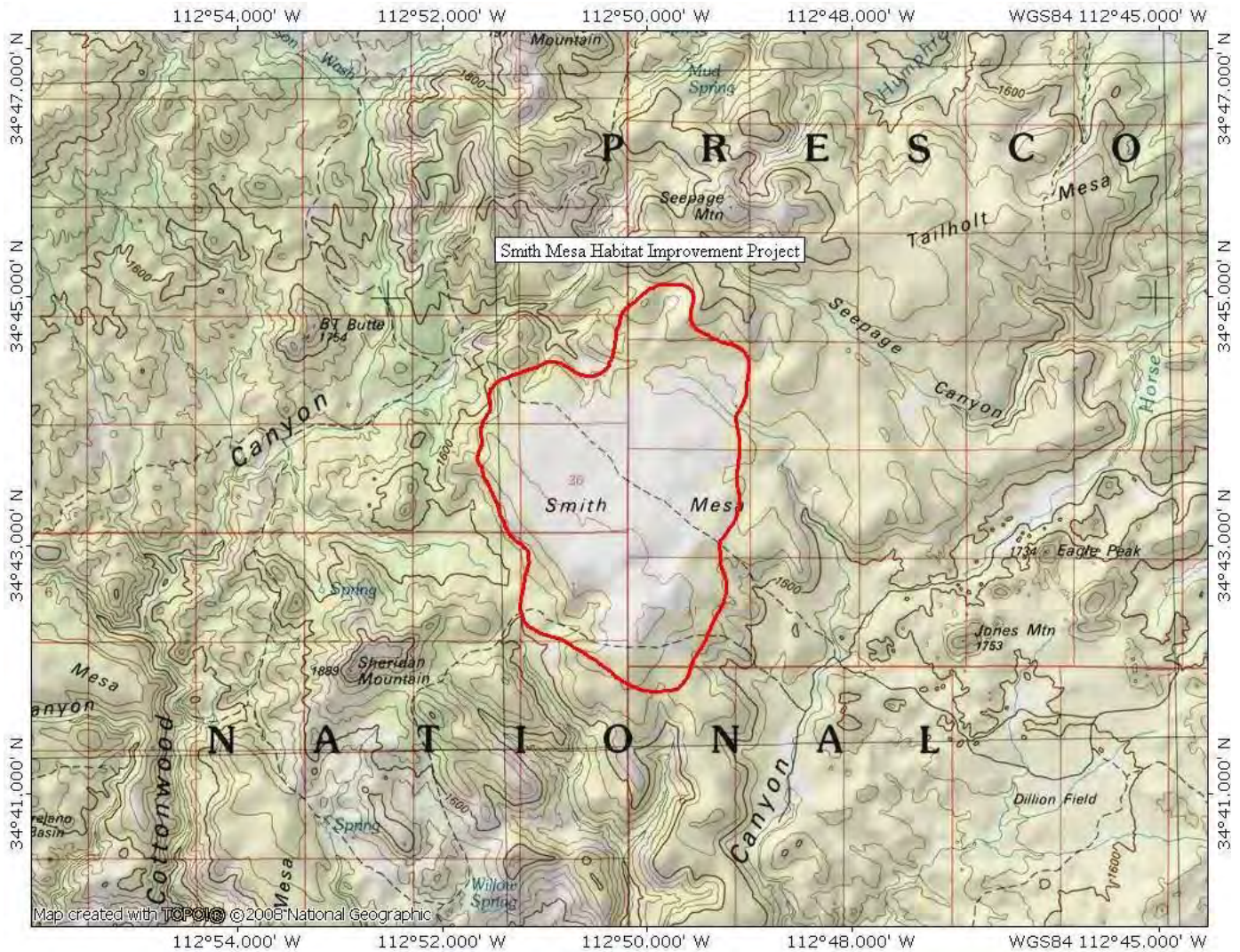
**PROJECT LOCATION:** Smith Mesa is located in west-central Arizona, in Yavapai County and is approximately 25 miles northwest of Prescott. The project site is located on Prescott National Forest within the Smith Canyon allotment. The Spider Ranch holds the grazing permit for the area. Proposed treatments will occur in portions of the following Township/Range/Sections:

T16N, R5W, Sections 18, 19, 30 and 31

T16N, R6W, Section 25, 26, 35 and 36

T15N, R6W, Section 1 and 12

T15N, R5W, Section 6



**LAND OWNERSHIP AT PROJECT SITE (Please state specifically if PRIVATE PROPERTY and provide landowner's name):** USDA, Prescott National Forest

**IF PRIVATE PROPERTY, IS THERE A STEWARDSHIP AGREEMENT BETWEEN THE LANDOWNER AND THE DEPARTMENT?** Not Applicable

**HABITAT DESCRIPTION:**

Smith Mesa is located in north central Game Management Unit 17B. It is framed to the east by Smith Canyon, to the north and west by Cottonwood Canyon and to the southwest by Sheridan Mountain. Vegetation is characterized by pinyon /juniper woodland and interior chaparral communities. Elevation at the proposed site is approximately 5,600 feet above sea level. While natural water is scarce on Smith Mesa, several earthen stock tanks provide permanent water sources. Surrounding the Mesa, water can be found in Smith and Cottonwood Canyon as well as a few springs. The proposed treatment would be directed toward the retrogression of dense stands of juniper and or juniper invasion of interior chaparral habitat.

**ITEMIZED USE OF FUNDS:**

**BUDGET ANALYSIS  
 SMITH MESA HABITAT IMPROVEMENT PROJECT**

**ANTICIPATED COSTS:**

<b>PROJECT COMPONENT and COOPERATOR</b>	<b>COST-SHARE DOLLARS</b>	<b>GRANT DOLLARS REQUESTED</b>
<p><b>ARIZONA GAME AND FISH DEPARTMENT/HPC FUNDING</b></p> <ul style="list-style-type: none"> <li>• Provide funding to contract chain saw crew to remove approximately 640 acres of juniper from the Smith Canyon Allotment in the vicinity of Smith Mesa. Funds calculated at AGFD contract price of 640 acres @ approximately \$120/acre.</li> <li>• <i>Provided funding for earthen stock tank maintenance project in Smith Canyon Allotment, completed during summer of 2007</i></li> </ul>	\$ 11,000	\$ 20,000
<p><b>ARIZONA GAME AND FISH DEPARTMENT REGION III</b></p> <ul style="list-style-type: none"> <li>• Provide wildlife manager support for grant preparation, project planning and implementation. Calculated as 7 days @ \$200/day</li> </ul>	\$ 1,400	
<p><b>SPIDER RANCH</b></p> <ul style="list-style-type: none"> <li>• Provide labor and support to select and mark Smith Mesa Project treatment areas with AGFD. Calculated at 5 days @ \$200/day</li> <li>• Provide funding to contract chain saw crew to remove approximately 640 acres of juniper from the Smith Canyon Allotment in the vicinity of Smith Mesa. Funds calculated at AGFD contract price of 640 acres @ approximately \$120/acre.</li> <li>• Submit LCCGP application seeking funding to contract chain saw crew. Ranch is working in coordination with the Department. The Department has written a letter of support to the Arizona Department of Agriculture on Gail's behalf</li> <li>• <i>Provided funding for earthen stock tank maintenance project in Smith Canyon Allotment, completed during summer of 2007</i></li> </ul>	\$ 1,000 \$ 7,000 \$ 50,000 \$ 11,000	
<p><b>USDA- PRESCOTT NATIONAL FOREST</b></p> <ul style="list-style-type: none"> <li>• Provide assistance in project planning and selecting and marking treatment areas; 3 days @ \$200/day.</li> <li>• Complete required archeological and any other clearances. 10 days @ \$200/day. <b>Decision memo favoring implementation signed on June 11, 2010. All federal compliance completed and ready for project implementation.</b></li> </ul>	\$ 600 \$ 2,000	
<b>TOTALS:</b>	<b>\$ 84,000</b>	<b>\$ 20,000</b>
<b>PROJECT TOTAL: \$104,000</b>		



**LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:**

Arizona Game and Fish Department:

- Provide funding through HPC and secure contract hand-cutting crew.
- Provide labor during pretreatment (assist in marking areas to be treated and mapping).
- Provide technical support during project to ensure maximum edge effect and cover for wildlife.
- Provide field support when needed during the project.

Gail Steiger, Manager, Eugene Polk Revocable Trust, DBA Spider Ranch:

- Provide assistance during pretreatment (assist in marking areas to be treated and mapping).
- Provide logistical assistance during hand-cutting work portion of project.
- Provide funding for hand-cutting crew.
- Apply for LCCGP grant through Az. Dept. of Ag. seeking \$50k

USDA PNF:

- This project has been heavily coordinated with Prescott National Forest. A site visit was conducted that included the Spider Ranch Manager, PNF Chino District Ranger, and AGFD. PNF agreed to include NEPA in coming fiscal year SOPA
- Provide support for project preparation and implementation.
- Decision memo signed June 11, 2010. All federal compliance is completed.

**PROJECT MONITORING PLAN:**

- The treatment areas would be included in future wildlife survey efforts by wildlife managers.
- The treatment area would be photographed extensively before treatment and after treatment.
- Pre and post treatment mule deer pellet group surveys may be conducted by AGFD personnel in an attempt to measure change in use by deer.

**PROJECT MAINTENANCE:**

Not Applicable

**PROJECT COMPLETION REPORT TO BE FILED BY:**

Darren Tucker, AGFD

**WATER DEVELOPMENT PROJECTS (see attached worksheet):**

Not Applicable

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

**ARIZONA GAME AND FISH DEPARTMENT  
TREE SHEARING WORKSHEET**

**PROJECT NAME:** Smith Mesa Habitat Improvement Project

- 1) **What is the estimated acreage of the project?** Project area is roughly 3,800 acres; approximately 640 acres will be treated using hand crews with chain saws.

- 2) **How are the trees going to be cleared? (agra axe, chain saw, push):** Hand crews using chain saws
- 3) **What is the estimated number of trees per acre?** 61-80
- 4) **Describe trees to be cleared (species, estimated diameter, single stem, multi-stem):** Although a few alligator junipers are present within the project area, only the California junipers will be cut. Most are re-growth from projects completed in the 1970's - 80's. Most trees range from 6-10 feet in height with a dbh of 4-5 inches.
- 5) **Describe terrain (slope, soil type, rocks, etc.)** The project area is mostly flat, with clay type soil and a significant malpais rock component.
- 6) **Please list any special land management status for the project site (i.e. Wilderness, National Park, National Monument, etc). If private land, list landowner.** Not Applicable
- 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

The quickest access to the project site is across private property owned by the Spider Ranch, which is an active partner in the project. Year around public access is available through Prescott National Forest.

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

Please describe any restrictions to public access: Not Applicable

#### **ATTACHMENTS:**

Attachemnt 1: Final decision memo from Prescott National Forest authorizing project implementation. PDF file.