

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

PROJECT INFORMATION	
Project Title: South Mowry Habitat Improvement Project	Project No. 07-521
Region/GMU: Region 5/ Unit 35B	HPC: Tucson
Project Type: Mechanical Brush Reduction	
Project Description: The South Mowry treatment block is designed to convert manzanita dominated ridges into more natural oak-savannah grasslands through mechanical mastication of brush species. Two previous treatment in the same vicinity successfully improved wildlife habitat, watershed condition, water infiltration, and herbaceous production, while reducing hazardous fuels and visual obstructions. Wildlife Species to Benefit: Coues whitetail, mule deer, javelina, Gould's turkey, Mearns quail, mountain lion, bear and various non-game species such as reptiles, neotropical birds and birds of prey.	
Possible Funding Partners:	
Implementation Schedule: South Mowry Beginning: November, 2007 Completed: April, 2008	NEPA Compliance: (if applicable) Completed: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Projected Completion Date: Sept. 1, 2007
PROJECT FUNDING	
SBG Funds Requested: \$ 40,000	
Cost Share Funds: \$ 137,000	
Total Project Costs: \$ 177,000	
PARTICIPANT INFORMATION	
Applicant: Doug Hardy, District Ranger (please print) Telephone: 520-378-0311	Address: 5990 S. Hwy 92 Hereford, AZ 85635
AGFD Contact and Phone No. (If applicant is not AGFD personnel) John Millican	
Coordinated with: AGFD, Private, USFWS, DHS, USFS	Date: June, 2007
Applicant's signature:	Date:

SEND COMPLETED APPLICATIONS TO:
 Game Branch, 2221 W. Greenway Rd.
 Phoenix, AZ 85023
mdisney@azgfd.gov

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

**HAS PROJECT BEEN SUBMITTED IN PREVIOUS YEARS? NO.
IF SO WAS IT FUNDED? NA**

NEED STATEMENT/PROBLEM ANALYSIS:

In 2004, approximately 12,000 acres around the San Rafael Valley were identified as being dominated by extremely dense stands of manzanita (*Arctostaphylos pungens*). The majority of the project area reached the current chaparral dominated ecological state due three primary factors:

1. In the late 1800's and early 1900's, large-scale woodcutting occurred to supply the local mines and surrounding town sites with charcoal for smelters and general-purpose fuel wood. This resulted in the removal of most large trees from much of the accessible portions of the Patagonia Mountains. Most brush species were ignored however, and grew well without the competition from the mature trees.
2. For at least the past 140 years, fire has been largely absent from the ecosystem due to such factors as heavy grazing and active suppression efforts. Manzanita is a fire-successional species, and a single fire event tends to germinate manzanita plants. However, a regular fire interval tends to keep the species in check and maintain a more open, savannah-type appearance to the landscape. Some portions of the project area were burned a single time, and never re-burned, encouraging manzanita plants to germinate, and eventually dominate many sites.
3. In the 1950's and 1970's management actions were taken to remove manzanita from some sites. The life expectancy of such projects is generally 25-30 years, and many of these areas are due for a scheduled re-treatment.

This condition is undesirable because:

- Current chaparral densities create marginal habitat for many wildlife species such as Gould's turkey and white-tailed deer, mule deer, and Mearns' quail.
- Current fuel loads present high risk to life, property, and fire fighter safety in the event of wildfires.
- Most of the ridges and mesas are in an undesirable ecological state (dense chaparral), which requires a disturbance to transition to a more desirable state (oak-savannah grassland).
- As chaparral density increases, herbaceous production decreases, leading to more bare soil, increased erosion, and increased water turbidity.
- Catastrophic wildfire in the chaparral type can burn intensely enough to create hydrophobic soils, reducing soil productivity, increasing erosion, and causing severe downstream flooding.
- Dense chaparral makes livestock management difficult, and prevents optimal livestock distribution.
- Thick vegetation hinders law enforcement efforts to detect, deter and apprehend narcotics and human smuggling activities.

- Dense shrub cover reduces quality of experience for hunters (less game, harder to see, difficult to retrieve)
- Manzanita is actively encroaching into open grasslands on the fringes of the San Rafael Valley.

In an effort to restore these areas to a more natural oak savannah ecological state, a strategy was developed to use mechanical treatments to selectively mow manzanita stands, avoiding mature oak trees and leaving a mulch of persistent litter on the ground. Actual implementation would be broken into stages to minimize impacts on individual populations.

In the spring of 2006, approximately 1,000 acres were masticated west of Lochiel, immediately north of the international boundary with Mexico. In the winter of 2007, approximately 1,000 acres were masticated in the vicinity of Mowry. In this treatment, we used a fecon bullhog cutter which produced very favorable results and is the equipment we would most likely use in the future.

In the winter of 2007/08 we intend to treat 1000 acres South of Mowry using a fecon bullhog cutter.

PROJECT OBJECTIVES:

The project objectives are:

- Convert 1,000 acres south of Mowry from dense chaparral to oak savannah;
- Improve habitat for species such as Gould's turkey, white tailed deer, mule deer, Mearn's quail, and numerous non-game species by creating large openings, increasing transitional edge, and improving grass and forb production
- Reduce the chances of catastrophic wildfire through redistributing fuel loads, thereby diminishing the wildfire threat to the wildland-urban interface community of Mowry.
- Improve watershed condition by increasing persistent litter, herbaceous production, and water infiltration.
- Improve quality of the hunting experience within treated and adjacent public lands, as measured by variety and abundance of game species and hunter access.

PROJECT STRATEGIES:

The prescription for the treatment includes the following details:

- Up to 1,000 acres of manzanita-dominated mesas and ridge tops may be treated with a Fecon Bullhog type machine or other mechanical equipment that can produce similar results.
- Areas to be treated will be limited to less than 30 % slope, and buffers will be left around all primary drainages.
- While manzanita is the target species, young oaks and junipers (less than 8 inch diameter) may also be removed.
- An oak savannah appearance is the desired end result.

- No seeding of herbaceous species should be required, as there is ample seed already in the soil.
- Mitigation measures identified in the wildlife specialist reports will be implemented.
- All identified cultural resource sites and land survey markers will be avoided.
- No work will be conducted in wet conditions to prevent soil compaction.
- Fire is not part of the prescription due to the quantity of highly flammable fuels and the vigorous germination that commonly occurs with controlled burns in manzanita dominated stands

The machinery to be used will be a rubber tired, articulated tractor with a front-mounted mastication attachment, which chops woody material into small pieces and scatters it on the ground, creating mulch ground cover. The masticator can cut to within 4 inches of the ground, minimizing soil disturbance. Rubber floatation tires allow the machine to work on rocky country, and minimize ground disturbance on softer soils. Most models can cut woody material up to eight inches in diameter. Since the mower is mounted on the front of the machine, it can be far more selective than many other mechanical treatment tools.

PROJECT LOCATION:

The project is located in T. 23 S., R. 16 E., Sections 22, 23, 24, 25, 26, and 27; and T. 23 S., R. 17 E., Sections 18, 19, 20, 29, and 30 on the Sierra Vista Ranger District of the Coronado National Forest (see attached map).

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

The project is entirely on National Forest System lands on the Sierra Vista Ranger District of the Coronado National Forest.

IF PRIVATE PROPERTY, IS THERE A STEWARDSHIP AGREEMENT BETWEEN THE LANDOWNER AND THE DEPARTMENT? N/A

HABITAT DESCRIPTION:

The project area can generally be described as chaparral transitioning to Madrean oak woodland on north aspects. Plains grasslands extend to the east of the project area. The project area is in the 16-20 inch precipitation zone and elevations range from 4,975 to 5,525 feet. The project area serves as marginal yearlong range for white tail deer, and potential expansion range for mule deer and Gould's turkey.

ITEMIZED USE OF FUNDS:

Requested funds will be used solely for implementation of the project. Based on expenses for two similar projects in 2006 and 2007, it is anticipated that it will cost approximately \$150 per acre for contracted equipment and operator.

**SOUTH MOWRY BRUSH REDUCTION
 BUDGET ANALYSIS**

COOPERATOR AND PROJECT COMPONENT	COST-SHARE DOLLARS AVAILABLE	GRANT DOLLARS REQUESTED
AGFD (Grant Funds) <ul style="list-style-type: none"> • 267 Acres masticated at \$150/acre for contracted equipment and operator 		\$40,000
Coronado National Forest <ul style="list-style-type: none"> • 733 acres masticated at \$150/acre for contracted equipment and operator • NEPA, biological and cultural clearance (complete) • Contract administration • Pre & Post project monitoring 	\$110,000 \$22,000 \$3,000 \$2,000	
Totals:	\$137,000	\$40,000
Project total cost: \$177,000		
<u>Ratio of match \$/grant \$: 3.4/1</u>		

LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:

Other cooperators include the San Antonio and Santo Nino Ranches which are the permittees for the grazing allotments that will be affected. They have modified their grazing rotation to facilitate the successful implementation of the project. They have also expressed strong support for the project as have most of the neighboring landowners. We are currently pursuing funding opportunities through the Department of Homeland Security for additional mastication treatments in the San Rafael Valley. They have been very pleased by the results of the previous two treatments and would like to assist in accelerating our implementation schedule. The Arizona Game and Fish Department and the US Fish & Wildlife Service have been involved in and supportive of the mastication projects from its inception. Representatives from these organizations have been particularly impressed by the increased habitat diversity that has resulted from the first two treatments (see demonstrated results photos).

PROJECT MONITORING PLAN:

Multiple photo points will be established for pre and post treatment comparisons for long term monitoring, as was done for the previous treatments in 2006 and 2007. Plant

species composition, cover and density will be recorded along transects centered on the photo points. Some cultural resource sites have been identified to be avoided and these are being treated as control reference areas. Several research institutions such as the University of Arizona, Agricultural Research Service, and the Rocky Mountain Research Station have expressed interest in monitoring the effects of mastication treatments on numerous environmental components.

PROJECT MAINTENANCE: Typically these projects have an effective life of 30-50 years depending primarily upon soil type, aspect and fire frequency. It is too early to predict if earlier maintenance will be required.

PROJECT COMPLETION REPORT TO BE FILED BY: Sierra Vista Ranger District, Coronado NF.

WATER DEVELOPMENT PROJECTS (see attached worksheet): NA

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

August 27, 2007

Mr. Doug Hardy
District Ranger, USFS
5900 S. Highway 92
Hereford, AZ 85635

Dear Mr. Hardy,

Recently, I had the opportunity to review the South Mowry Habitat Improvement Project, which will utilize a Fecon Bullhog cutter to mechanically masticate Manzanita from approximately 1,000 acres of Forest Service lands located south of Mowry, in the San Bernardino Valley of Game Management Unit 35B. This project will effectively enlarge the overall treatment area that began in the spring of 2006, and continued into the winter of 2007. To date a total of approximately 2,000 acres of dense chaparral habitat has been transformed into a more natural oak-savannah habitat type.

Prior to these treatments, the area was in an undesirable ecological state with very little intrinsic value for wildlife. Since the treatments, I have had the opportunity to look at both sites and am very impressed by the transformation of these areas into a oak-savannah grassland ecosystem that is representative of the San Rafael Valley.

The vegetational diversity caused by the removal of Manzanita has greatly aided all wildlife species, along with diminishing fuel loads, thereby, reducing the threat of wildfire. Due to the diverse habitat conditions resulting from this mastication effort, the amount of habitat for wildlife species such as white tailed deer, mule deer, Mearn's quail, Gould's turkey and many non-game species has been increased.

In conclusion, I am in complete support of this project and look forward to assisting with developing treatment locations throughout the forest. It appears that this is a cost affective approach at increasing transitional habitat, along with improving grass and forb production in areas that otherwise would continue to be nonproductive.

Sincerely,

John Millican, Wildlife Manager, Sierra Vista
Arizona Game and Fish Department
555 N. Greasewood
Tucson, Arizona 85745

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

PROJECT NAME: South Mowry Brush Reduction

1) What is the estimated acreage of the project?

1,000 acres to be masticated within 1,500 acres identified in the South Mowry project area.

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

Mechanical mastication using a fecon bullhog type masticator.

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

Variable

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

Manzanita is the target species, although young multi-stemmed oaks and junipers under 8" DBH will also be masticated. Mature oaks (greater than 8" DBH) will be avoided.

5) Describe terrain (slope, soil type, rocks, etc.)

Long ridgetops and south facing side slopes will be treated. Equipment is limited to operating on slopes less than 30% grade, and will generally be operating on slopes that do not exceed 20%. Most of the project area is dominated by shallow loamy soils with a significant amount of cobble on the surface.

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.

The project area is entirely on lands administered by the Coronado National Forest. The San Antonio and Santo Nino ranches are the grazing permittees on the affected allotments and support the project.

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 shearing equipment? YES NO

Please describe any restrictions to public access: None

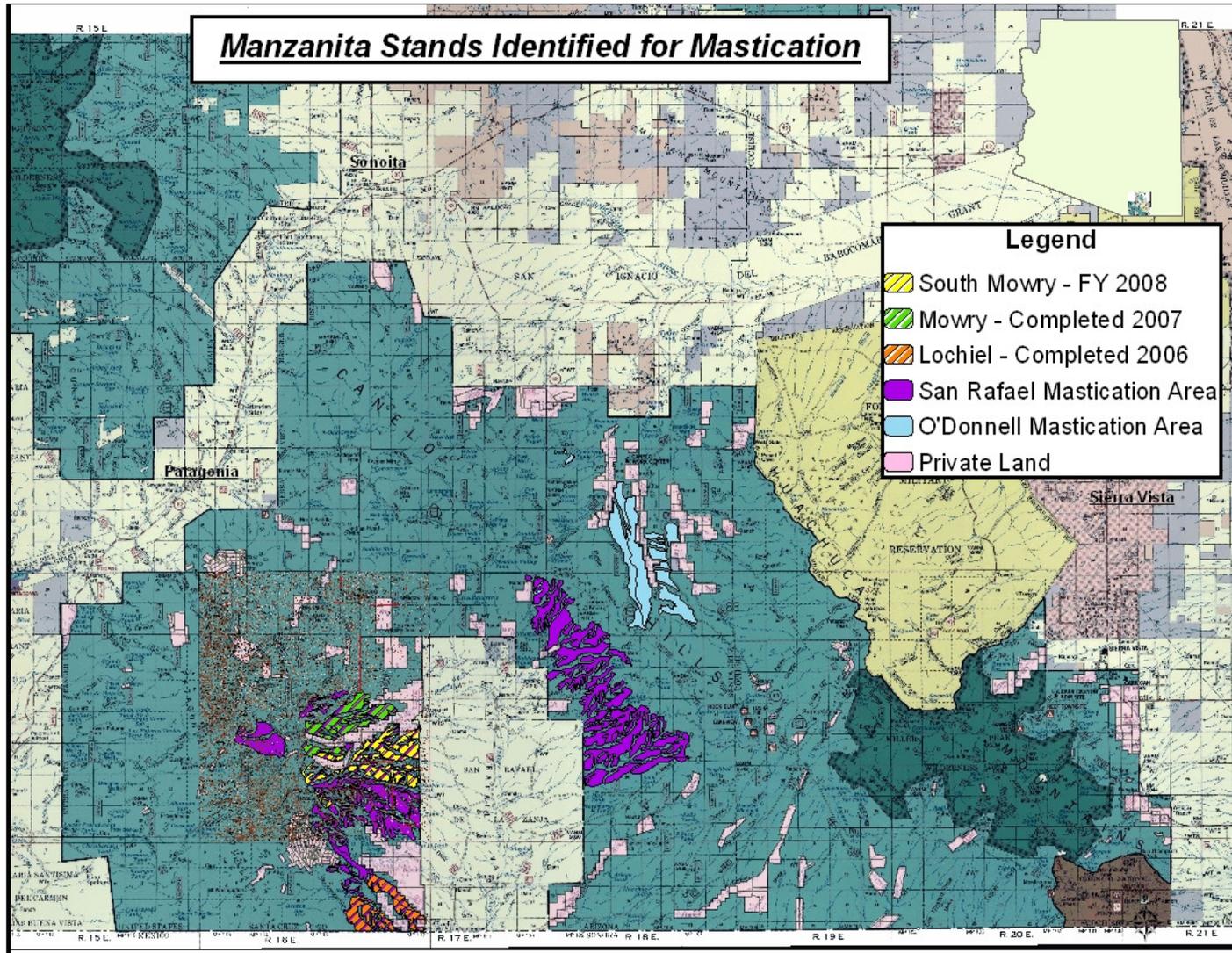


Figure 1. Manzanita stands identified for mastication on Sierra Vista Ranger District, Coronado National Forest

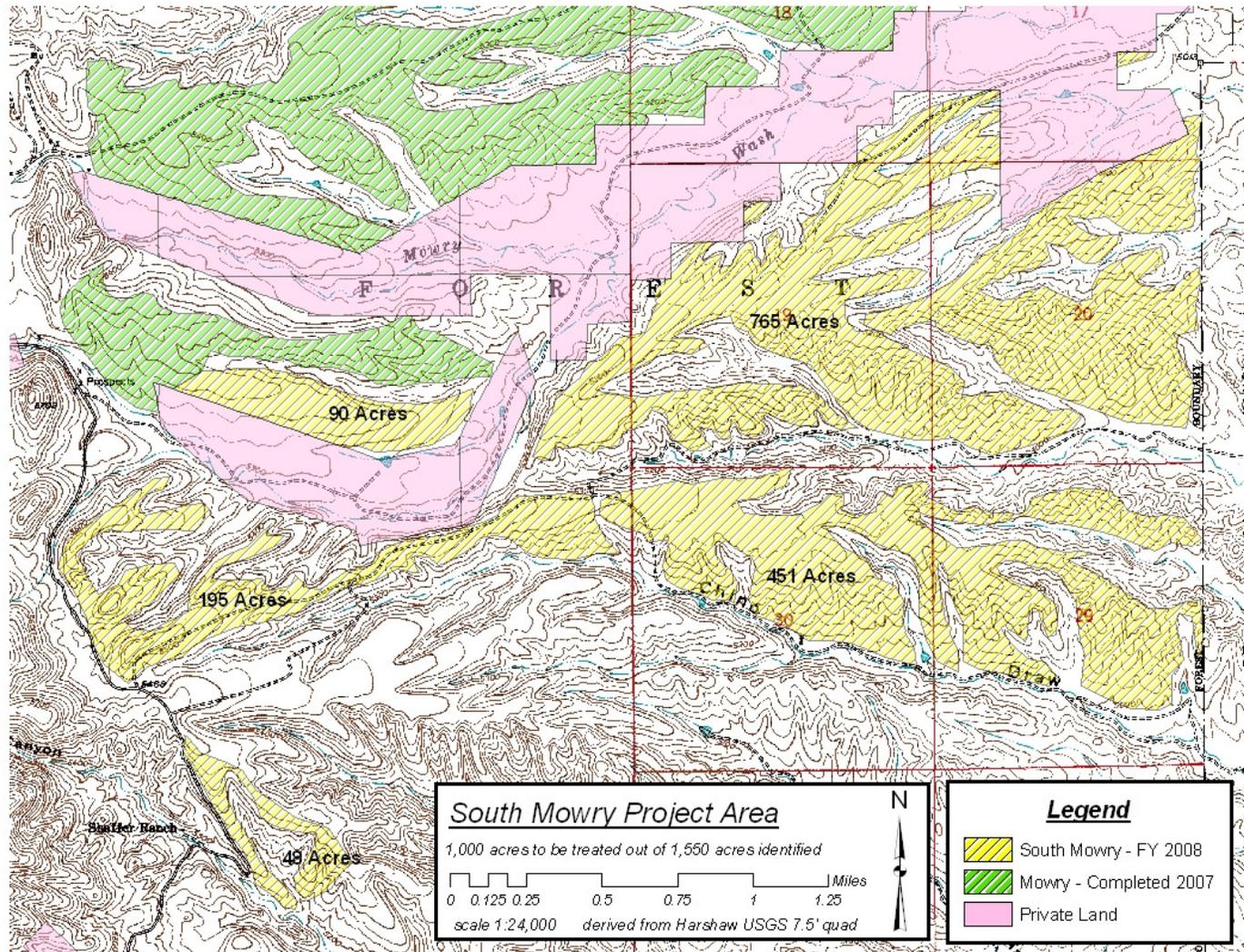


Figure 2. South Mowry project area to be masticated in fiscal year 2008. 1,000 acres will be treated out of the 1,550 acres identified.

DEMONSTRATED SUCCESS – Lochiel 2006



Figure 3. Photo point 1 pre-treatment; west of Lochiel AZ, January 2006



Figure 4. Photo point 1 post-treatment photo, September 2006

(revised 7-02-2007)

DEMONSTRATED SUCCESS – Lochiel 2006



Figure 5. Photo point 3 pre-treatment photo west of Lochiel, AZ, January 2006



Figure 6. Photo point 3 post-treatment photo, September 2006

(revised 7-02-2007)

DEMONSTRATED SUCCESS – Mowry 2007



Figure 7. Dunham photo point pre-treatment, January 2007. NE side of San Rafael Valley



Figure 8. Dunham photo point Post treatment, June 2007

(revised 7-02-2007)

DEMONSTRATED SUCCESS – Lochiel 2006



Figure 9. T2 photo point pre-treatment, January 2007. Near Apache Road east of Mowry



Figure 10. T2 photo point post-treatment, June 2007.

(revised 7-02-2007)