

**Kaibab West-Side Pinyon-Juniper
Removal for Browse Release**

Final Report

Submitted to the National Forest Foundation

Missoula Montana



Submitted by

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Introduction:

An important adverse impact to mule deer habitat is the expansion in distribution and increased density in juniper (*Juniperus* spp.) and pinyon pine (*Pinus* spp.) woodlands since the late 1800s in western North America. Expansion of these woodlands has been facilitated by multiple factors, including climate change, fire suppression, livestock grazing, and human modifications. As this expansion has occurred, both plant and animal species composition have changed and important forage species for mule deer have declined.

The Kaibab Plateau in north-central Arizona is home to one of the premier mule deer herds in North America and has been used in the study of wildlife management for decades. A portion of the history of this mule deer herd is one of irruptions followed by severe crashes. Current management of this herd focuses on maintaining the herd within the capacity of the habitat used by this herd, which is migratory. The carrying capacity of the summer range has improved with effective timber harvest strategies that opens the un-naturally dense forest canopy and allows sunlight to penetrate to the forest floor and increase herbaceous production, benefiting mule deer. Most experts on the Kaibab region are of the opinion that deteriorated conditions on the important winter range now limit the number of mule deer that can be maintained in this herd unit without damage to the limited forage base on winter range. The primary cause for the decline in capacity on the winter range is invasion of woody species; primarily pinyon pine and juniper. The dense canopy formed by these species preclude much shrub and forb production on winter range, a factor that stresses this herd in a critical biological period.

The Western Association of Fish and Wildlife Agencies' Mule Deer Work Group have reaffirmed that mule deer numbers are limited in this ecoregion by forage quality and quantity. In that carefully planned habitat rehabilitation can reverse these factors and increase the land's capacity to support mule deer, this proposed project will reverse decades of habitat degradation. This will result in a benefit to both mule deer and the public that enjoys their presence. One of the recommendations of this group is to reduce the density of pinyon and junipers in areas where winter browse species are present to facilitate browse expansion and better meet nutritional demands for mule deer.

This project report documents the results achieved by the partnership of the Arizona Game and Fish Department, the Arizona Deer Association, the U. S. Forest Service, and the Arizona Sportsmen for Wildlife Conservation in a project whereby woody species were reduced to allow browse expansion on the important winter range on the west side of the Kaibab Plateau; an area critically important to mule deer during winter.

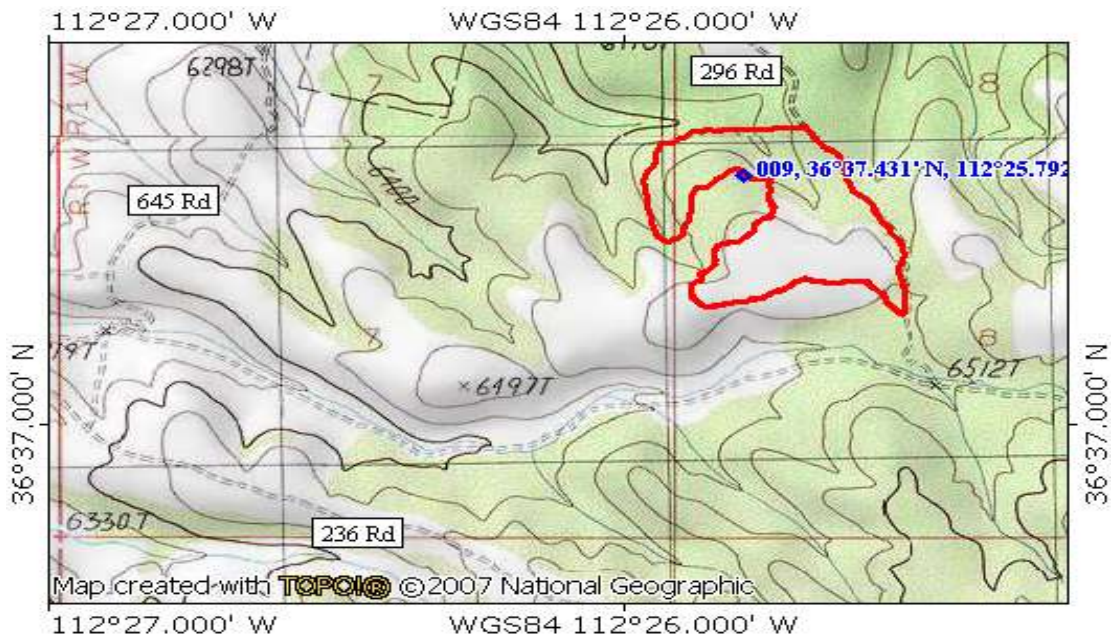
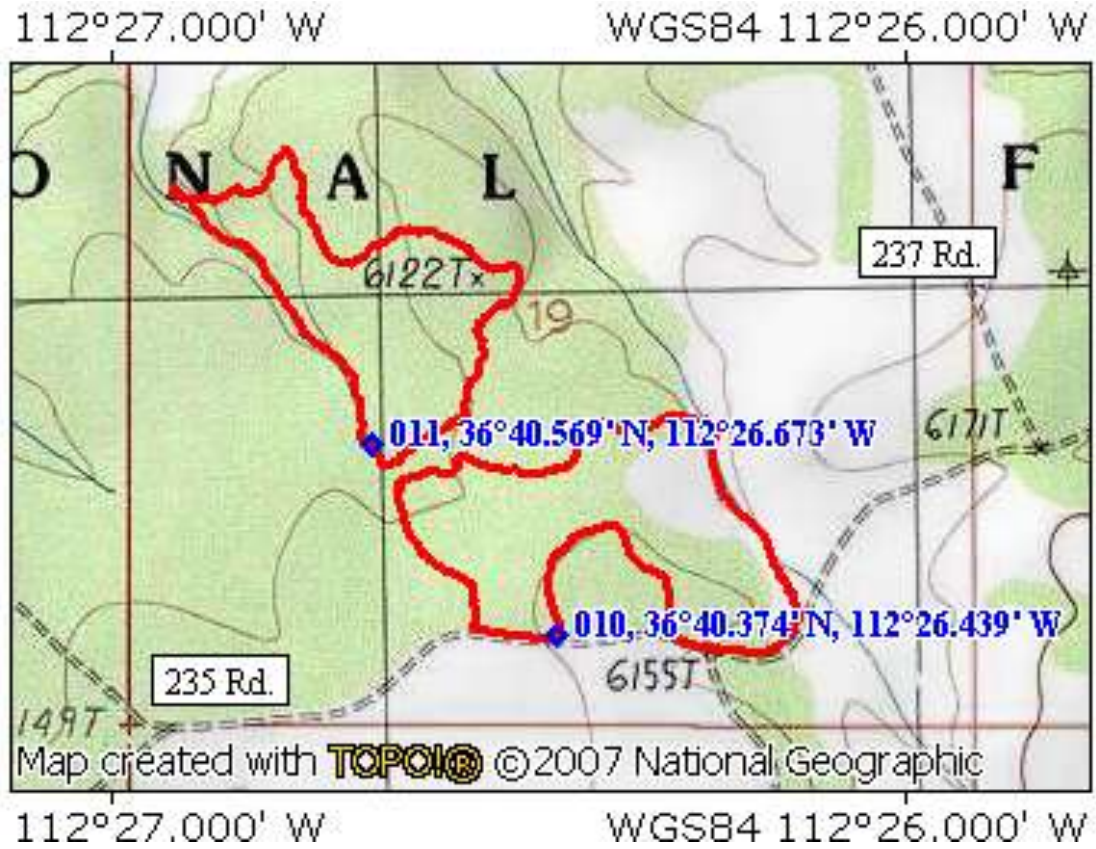
Methods:

Several elements of this project were completed in accordance with the proposal submitted to the National Forest Foundation as follows:

Project site identification:

The Arizona Game and Fish Department had the lead on this project element and this was completed by Todd Buck, the AZGFD Wildlife Manager for the Kaibab Plateau. The maps on

the following page are the locations identified and flagged by the AZGFD for treatment. These polygons were increased in size by the Forest Service as they rechecked some cultural sites.



Tree Grinding:

In accordance with the environmental documentation for this project, the goal was to reduce pinyon-juniper density by elimination of individuals of these species less than 12 inches in diameter within identified areas. The original proposal called for treatment using hand-sawing, however, based on input from the partners to this project, the Arizona Game and Fish Department requested a modification of methods to use grinding rather than hand-sawing. This change was based on their experience with similar projects using grinding versus hand-sawing. As a consequence, we elected to hire an experienced grinding crew to do the actual thinning. Thinning was accomplished between September 13 and September 27, 2010. This timing was developed at the request of the Arizona Game and Fish Department as their biologists felt that the browse would respond best when early fall treatments were administered. During this time period, all of the identified plots were treated with the exception of two small drainage areas where the terrain was too steep for safe operation of the equipment.



This is a photo of pretreatment forest conditions. Canopy cover was nearly 100 percent in much of the project area.



Rotary head equipment featured here were used to treat the P-J

One of the fringe benefits of this project was the ability to treat some of the over-mature cliffrose trees on an experimental basis. This was done at the request of the project partners who discussed this issue during a recent field trip to the project area where many cliffrose had a growth form where the vast majority of the vegetative material was unavailable for foraging mule deer.

During final inspection of the project, the benefits of the treatments were readily apparent based on the following photos.



As noted, the reduction of the pinyon-juniper proceeded well with all of the area flagged by the AZGFD and the USFS being treated with the exception of steep areas where the equipment could not safely operate.

Volunteer seed collection:

One element of the proposal was to use volunteer seed collection to help establish key browse species for mule deer use. In discussions with the AZGFD staff persons who were primarily responsible for this project, cliffrose was the most desirable species to try and reestablish and seed production was not great during the project year so collections were not scheduled. In lieu of volunteer collection, the AZGFD donated nearly 500 pounds of cliffrose seed and approximately 150 pounds of Wyoming big sage. Approximately half of the seed has been applied at this time and a volunteer seeding effort using volunteers from the Arizona Deer Association and the Boy Scouts is scheduled for late October or early November after a precipitation event has occurred.

Information sharing:

Due to the request by the Arizona Game and Fish Department that the grinding occur in late summer to early fall, it was not possible to schedule a presentation at the Mule Deer Workshop in Oregon, however, there is a Mule Deer Workshop in 2011 in New Mexico and a presentation titled “Private-Public partnership to accomplish habitat restoration” will be presented at this

workshop. Coordination with the chair with the New Mexico Game and Fish Department is ongoing.

Additionally, with the award date of October 1, 2009, there was insufficient time to present information to at the youth camp on during the antlerless hunt in 2009 as this occurs in the first half of October. However, the Project Manager is scheduled to provide information to the youth hunters on October 9, 2010 on the Kaibab. Later that day, a briefing will also be provided to the Executive Board of the Arizona Deer Association.

PROJECT SUMMARY:

As proposed, the AZSFWC, with project partners including the Arizona Deer Association, the U. S. Forest Service, the Arizona Game and Fish Department, and local citizens, was able to complete a successful browse release project on the winter range of the Kaibab Plateau. The treated habitat, when combined with previous treatments, will improve habitat conditions on this portion of the Kaibab National Forest. With this improvement, a multitude of wildlife species will benefit. Further, the partnership developed via this project will help carry forward new projects that will make the forest a better place for wildlife and for the people who enjoy the Kaibab National Forest. It is important to note that the two remaining elements (Information sharing and volunteer use of seeds collected) will be done with no cost to the National Forest Foundation.