EVALUATION
OF THE
NEW MEXICO STANDARDS FOR PUBLIC LAND HEALTH

DATE: **9/18/2009**

ALLOTMENT NAME/NUMBER: **Plowman Ridge Allotment No. 09021**

PUBLIC LAND (ACRES): **Upland 9,173** **Riparian 0**

1 INTRODUCTION

The Code of Federal Regulation (43 CFR 4180) for grazing livestock on public land administered by the Bureau of Land Management (BLM) require the authorized officer to take appropriate action to ensure that watersheds are in or making progress toward properly functioning physical condition. In January 2001, the BLM in New Mexico completed a Statewide Resource Management Plan Amendment and Environmental Impact Statement in which three Public Land Health Standards were adopted: Upland Sites, Biotic Communities, and Riparian Sites.

Per the BLM grazing regulations and policy, the agency is required to evaluate whether the Public Land Health Standards are being achieved or not achieved; this document will serve that purpose. Where the Public Land Health Standards are not being achieved, the agency must complete a Determination document to identify the causal factors. A Determination document will only be completed if the conclusion of the Evaluation is that the Public Land Health Standards are not being achieved (Washington Office Instruction Memorandum 2009-007).

2 EVALUATION

2.1 Standard 1 (Upland Sites)

Upland ecological sites are in productive and sustainable condition within the capability of the site. Upland soils are stabilized and exhibit infiltration and permeability rates that are appropriate for the soil type, climate, and landform. The kind, amount, and/or pattern of vegetation provide protection on a given site to minimize erosion and assist in meeting State and Tribal water quality standards.

2.2 Standard 2 (Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species)

Ecological processes such as hydrologic cycle, nutrient cycle, and energy flow support productive and diverse native biotic communities, including special status, threatened, and endangered species appropriate to the site and species.

2.3 Standard 3 (Riparian Sites) [the standard is not applicable to this allotment]

Riparian areas are in a productive, properly functioning, and sustainable condition, within the capability of that site.

2.4 Rationale/Information Sources (describe in detail the information that was used to reach the conclusions):

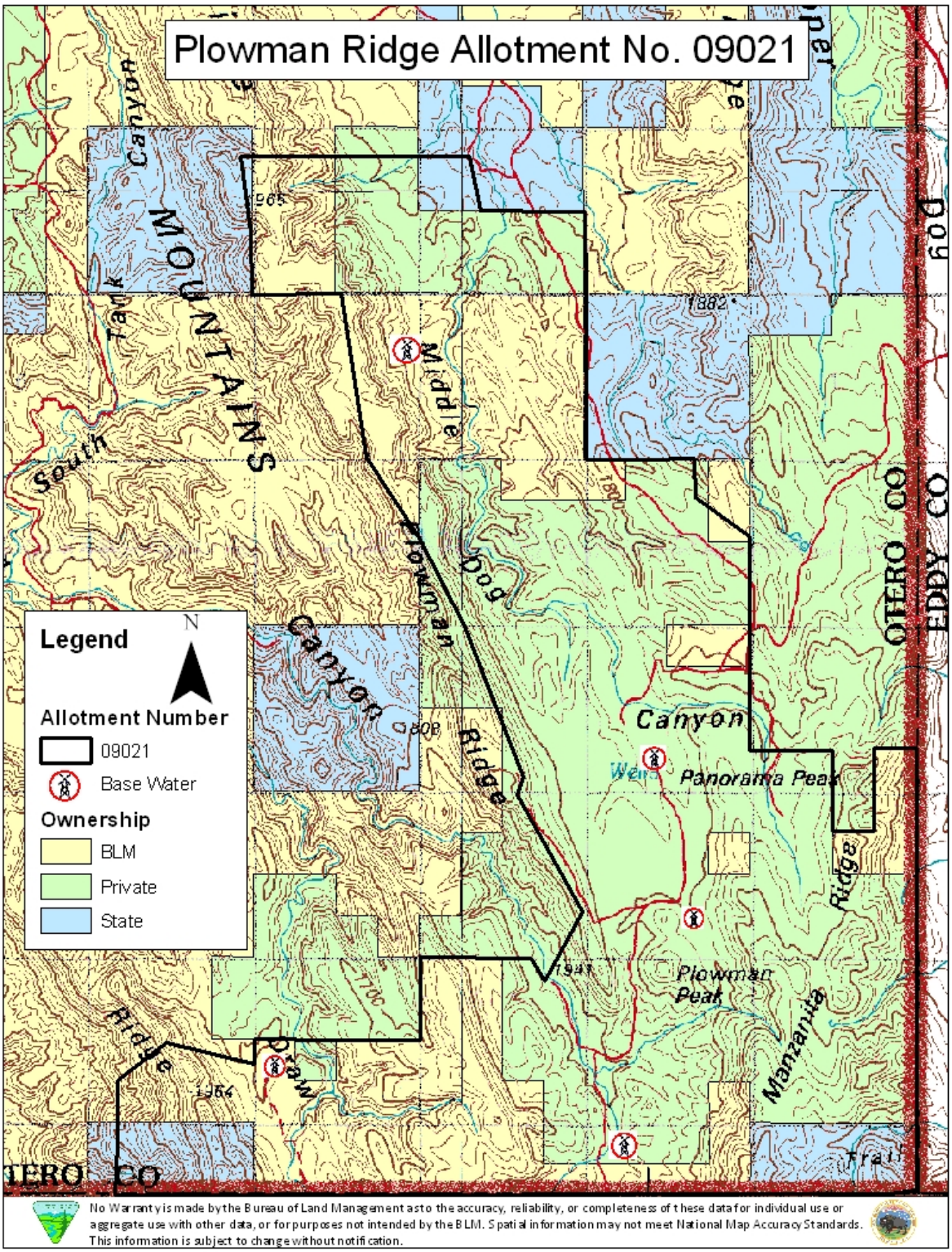
Rangeland Health Assessments

Rangeland health assessments were conducted on the Plowman Ridge Allotment No. 09021 at two different sites on August 25, 2009 by a team consisting of four experts in the fields of rangeland, soils/hydrology, and wildlife resources. Twenty-one public land health indicators were used to assess the attributes of soil/site stability, hydrologic function, and biotic integrity, following the methods outlined in Interpreting Indicators of Rangeland Health, Version 4, Technical Reference 1734-6 (Pellant, Shaver, Pyke, and Herrick, 2005). The 21 indicators were ranked according to their departure from the reference conditions that were developed by an interagency/interdisciplinary group of local experts using the expected historical climax conditions described in the NRCS's ecological site description as a guideline. The worksheets are on file at the Las Cruces District Office. Information from long-term BLM records was also incorporated in this evaluation.

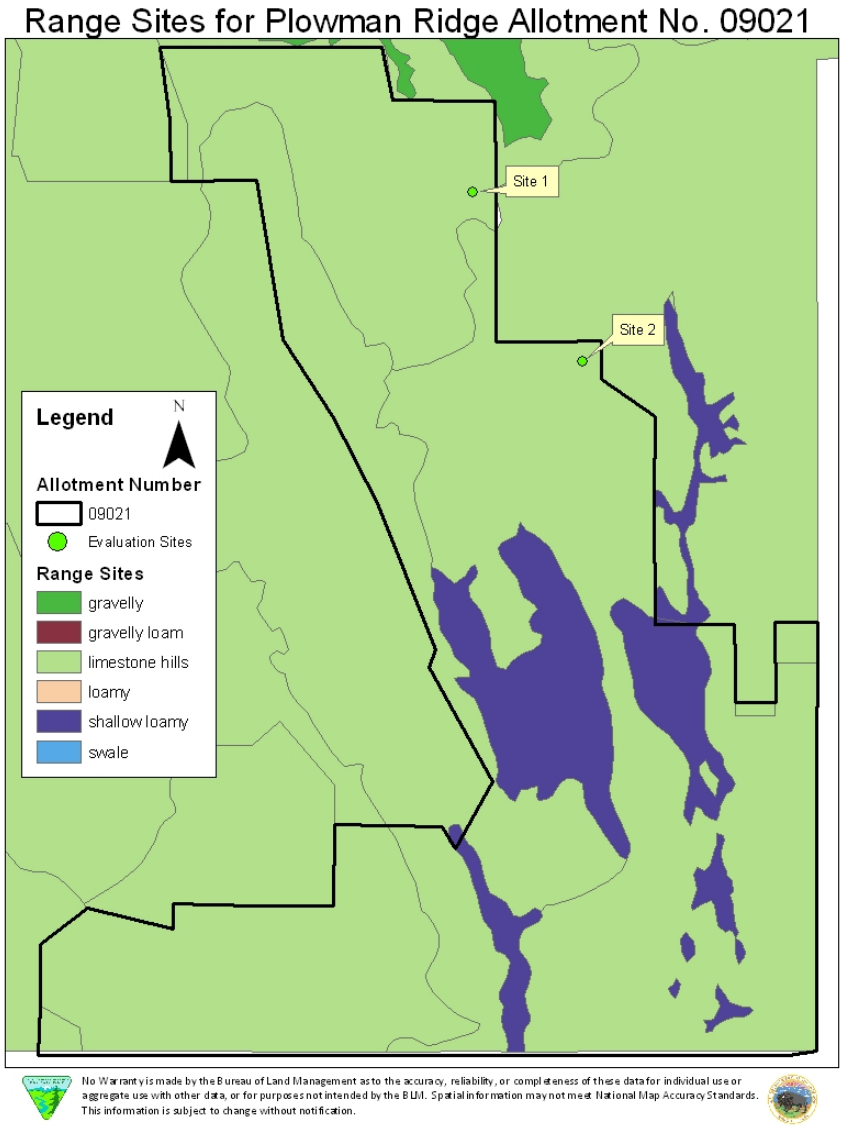
Ecological sites examined, using 21 public land health indicators.

The majority of public land on the Plowman Ridge Allotment occurs within the CP4-Limestone Hills ecological site. Therefore, only one ecological site was examined at two different evaluation sites. See Map 2, "Range Sites for Plowman Ridge Allotment No. 09021". At each of the evaluation sites, the 21 indicators of rangeland health were evaluated by the team.

Map 1: Illustrates general features and lands status for the Plowman Ridge Allotment.



Map 2: Illustrates the different range sites found on the Plowman Ridge Allotment, as well as the location of the evaluation sites.



Indicators for soil/site stability are rills, water-flow patterns, pedestals and/or terracettes, percent bare ground, gullies, wind-scoured, blowouts and/or depositions areas, litter movement, soil surface resistance to erosion, soil surface loss or degradation, and compaction layer.

Indicators for hydrologic function are rills, water-flow patterns, pedestals and/or terracettes, percent bare ground, gullies, soil surface resistance to erosion, soil surface loss of degradation, plant community composition and distribution relative to infiltration, compaction layer, and litter amount.

Indicators for biotic integrity are soil surface resistance to erosion, soil surface loss or degradation, compaction layer, functional/structural groups, plant mortality/decadence, litter amount, annual production, invasive plants, reproduction capability of perennial plants, wildlife habitat, and wildlife populations.

CP-4 Limestone Hills

The CP-4 Limestone Hills ecological site was in a Grass/Shrub/Succulent-Mix state. Vegetation was primarily made up of sideoats grama, blue grama, hairy grama, mountain muhly, wolftail and New Mexico needle and thread grass, as well as yucca, mountain mahogany, little leaf sumac, beargrass, and juniper.

Site 1

Soil/Site Stability was given the overall rating of none-to-slight, all indicators for soil/site stability were rated in the none-to-light category. There were no rills, pedestals and/or terracettes, gullies, compaction layers, or wind scoured areas evident at the evaluation site. Water-flow patterns were what one would expect to see with the vegetation patterns and slope. The site had very little bare ground with cover consisting or a variety of vegetation and interspaces filled with coarse fragments. There was a small amount of litter movement on the site but movement was uniformed across the site which was expected for vegetation types and slope. Soil surface resistance to erosion, and soil loss or degradation was good due to the amounts of vegetation at the site.

Hydrologic Function was rated as none-to-slight, with all indicators for hydrologic function being rated in the none-to-slight category. There were no rills, pedestals or terracettes, gullies, or compaction layers at the site. Water flow patterns were consistent with what one would see at a limestone hills site. There was very little bare ground at the site with a good amount of vegetation as cover and coarse fragments in the interspaces. Soil surface resistance to erosion is high, as there is very little bare ground with vegetation providing adequate cover, and coarse fragments taking up to interspaces. Soil surface loss or degradation was very limited due to the adequate cover and low amounts of bare ground. Plant community composition and distribution relative to infiltration was good for a limestone hills site.

Biotic Integrity was rated as none-to-slight and all of the indicators for biotic integrity were rated in the none-to-slight category. Soil surface resistance to erosion, and soil loss or degradation was high because of the amounts of vegetation and low percentage of bare ground found on the site. Functional/structural groups consisted of species you would find in a grass/shrub/succulent-mix state, which is reference condition for a limestone hills site. Vegetation at the site consisted of different age classes allowing for adequate recruitment, with very little plant mortality/decadence. Litter amounts at this site were as expected for grass/shrub/succulent mix vegetation types. Annual production and reproductive capability was high for the grass/shrub/succulent mix vegetation types. Invasive plants included cholla, but not in the capacity to take over the site. The site is in a state where it provides good wildlife habitat.

Site 2

Soil/Site Stability was rated none-to-slight, with all indicators for soil/site stability being rated in the none-to-slight category. There were no rills, pedestals or terracettes, gullies, compaction layer, wind

scoured blowouts or deposition areas. Water flow patterns were healthy for a limestone hills site. There was very little bare ground at the site, with the interspaces between vegetation being filled with coarse fragments. Litter movement was uniformed and very slight. Soil surface resistance to erosion, and soil loss or degradation was high at the evaluation site due to good vegetation cover as well as biotic crusts that make the soil surface very stable.

Hydrologic Function was rated in the none-to-slight category, with all indicators being rated as none-to-slight. There were no rills, pedestals, terracettes, gullies or compaction layer. Evidence of water flow patterns showed it was healthy for a limestone hills site. Percent bare ground was very low at the site, with uniformed vegetation cover and coarse fragments, as well as some biotic crusts in the interspaces. Soil surface resistance to erosion, and soil loss or degradation was high, due to the low percentage of bare ground and the good cover at the site. Plant community composition and distribution relative to infiltration was good and there was no evidence of overland flow so there is good infiltration on the site. Litter amount was in balance with the type and amounts of vegetation found on the site.

Biotic Integrity was rated as none-to-slight, two of the indicators were rated in the slight-to-moderate category, while the remaining indicators for biotic integrity were rated in the none-to-slight category. Functional/structural groups and invasive plants were rated in the slight-to-moderate category due to the amount of young juniper that were in the area. Although the limestone hills site is desired to be a grass/shrub/succulent-mix, the amount of young juniper could potentially change the site to a shrub/succulent-dominated site. The remaining indicators were placed in the none–to-slight category because soil surface resistance to erosion, and soil loss or degradation was high due to low percentage of bare ground and good cover. There was no compaction layer evident on the site. Plant mortality/decadence was not at an unnatural pace. Litter amount was in balance with the vegetation types and amounts. Annual production and reproductive capability of perennial plants was excellent at the site, with good amounts of vegetation in different age classes and producing seeds. Wildlife habitat at the site was in good condition for supporting wildlife found in the area.

Other Information

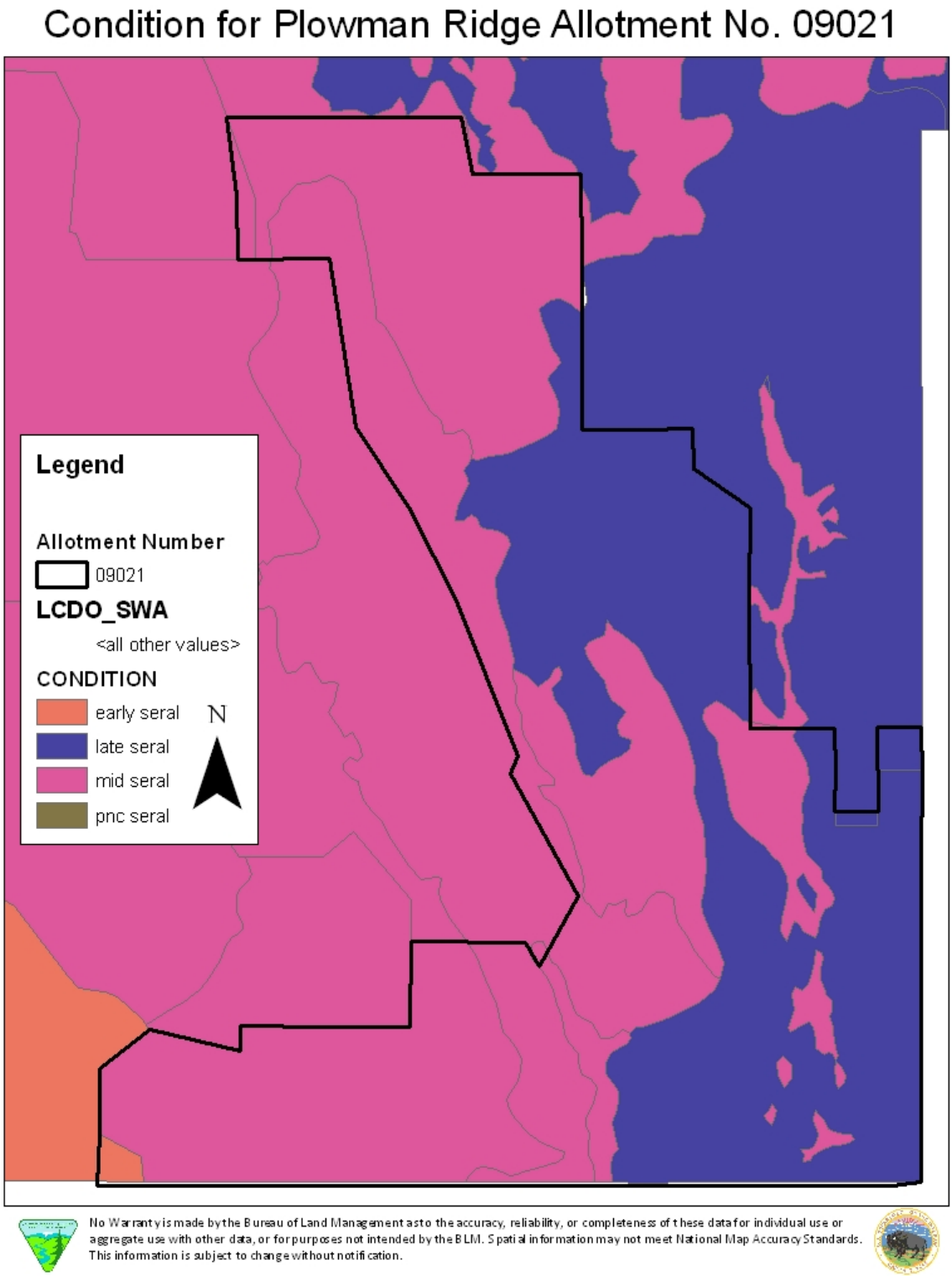
SVIM studies were conducted on the allotment in 1982, and 1983 in which the allotment was mapped into different range condition categories (early, mid or late seral). The range condition of more than half of the allotment was mid seral, while the rest was late seral. See Map 3.

Double sampling monitoring was completed in 1993 at two different monitoring sites. See Table 1 for results.

Table 1: Double sampling monitoring results for Plowman Ridge.

Table 1 **Double Sampling Monitoring Results**	
Transect No.	Condition Class Rating
	1993
1	Late Seral
2	Late Seral

Map 3: Illustrates the Condition of the Plowman Ridge Allotment after SVIM studies were completed.



Step point monitoring was done on the allotment in 1982 at one site, and in 1993 at two sites (see Table 2

for monitoring results).

Table 2: Step Point Monitoring Results For Plowman Ridge Allotment.

Table 2 Step Point Monitoring Results				
Transect No.	Percent Ground Cover		Percent Canopy Cover	
	1982	1993	1982	1993
1	92%	95%	31%	67%
2	-	93%	-	56%

Utilization studies were carried out on the allotment in 1988, 1993 and 1997 on key species such as aristida, sideoats grama, blue grama, hairy grama, muhley and dropseed (see Table 3 below for utilization monitoring results).

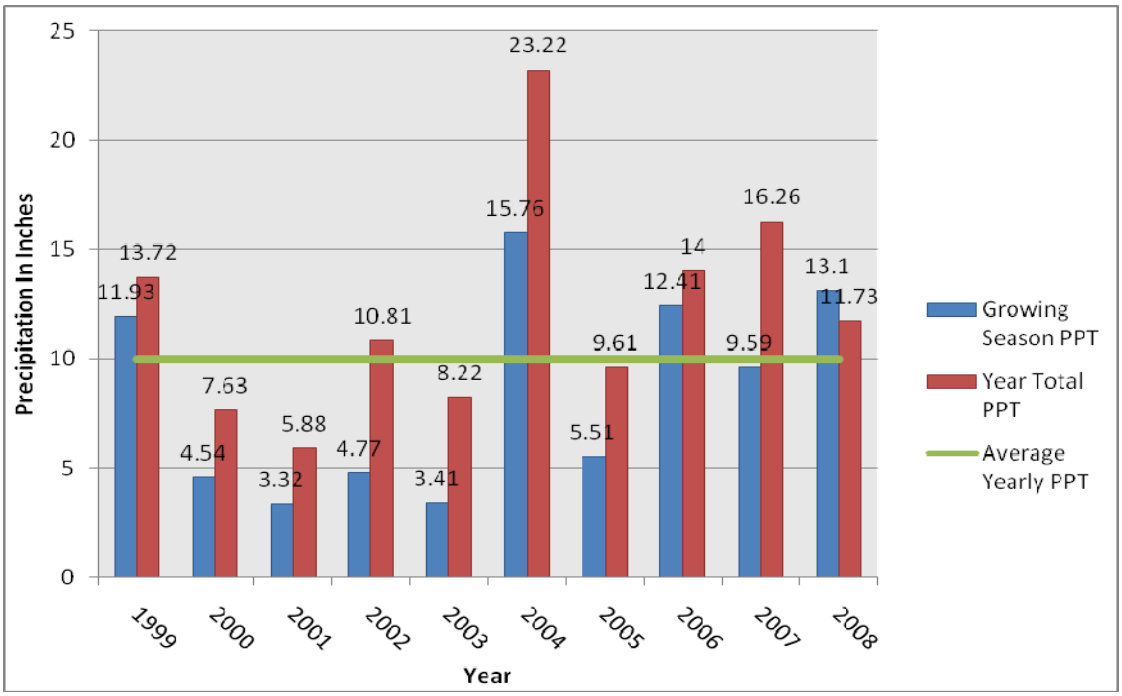
Table 3: Utilization Monitoring Results For Plowman Ridge Allotment.

Table 3 Utilization Monitoring Results		
Utilization Rating		
1988	1993	1997
Light to Moderate	Slight to Light	Slight

These 3 years of utilization surveys showed that the Plowman Ridge Allotment was within the desired range of utilization, with a trend of lighter utilization every year. The allotment billed AUMs (see Chart 1) also reflects the light utilization levels on the allotment, which in the last 10 years has been grazed below full capacity as is show in the table below.

Chart 1: Plowman Ridge billed AUMs for 1999 thru 2009

Chart 2: Precipitation (PPT) data, 1999-2008, taken from NOAA. Data was collected from the Dell City, TX weather station.



In 1999, an Environmental Assessment (EA-NM-030-99-054) was completed, which authorized the conversion of livestock from sheep to cattle. A conversion rate of 7:1 (sheep to cattle) was established. Permitted use based on the 7:1 conversion rate will continue to be authorized until monitoring studies indicate that a change is necessary.

Conclusion

The limestone hill ecological site is in the grass/shrub/succulent-mix state, which is the reference condition for the ecological site. Removal of livestock would not improve the condition of the allotment, as it is already in excellent condition. Areas where encroaching young juniper is a concern would not be affected with the removal of livestock, management practices such as prescribed fire or chemical treatment would be the only way to reverse a infestation of juniper. There are no foreseeable changes that would cause the condition of the allotment to deteriorate. Current livestock grazing practices have allowed for the maintenance of a grass/shrub/succulent-mix vegetation type, which is desired for limestone hills.

In conclusion, based on the analysis of the indicators of rangeland health and evaluation of existing data, the Plowman Ridge Allotment is meeting the Upland Site and Biotic Communities Standards, and is in a stable static condition with an upward trend.

3 DETERMINATION

N/A

4 CONSULTATION AND COORDINATION

List the names and discipline or interest of those involved with this Evaluation/Determination.

BLM Personnel:

Name *(please sign and print)*	**Discipline or Interest**
B. Call, Soil Scientist	Soil/Water/Air
A. Underwood/C. Teske, RMS	Vegetation
A. Underwood/C. Teske, RMS	Invasive, Non-native Species
A. Underwood/C. Teske, RMS	Livestock Grazing
M. Hakkila, Wildlife Biologist	Wildlife
M. Hakkila, Wildlife Biologist	Threatened, Endangered, & Special Status Species
	Riparian
	Fire/Fuels
	Recreation/ Visual Resource Management
	Wilderness/ACEC/RNA
	Cultural
	Lands
	Minerals
	Hazardous Wastes

Permittee(s):

_____ _____

_____ _____

Team Leader(s) for the ID Team **Date**

CONCURRENCE:

☐ **Yes**

☐ **No** *(if checked no, please provide rationale)*

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_____

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_____ _____

Jim C. McCormick, Jr.
Assistant District Manager
Renewable Resources

Date