

APPENDIX 2

WILD HORSE POPULATION ANALYSIS

AND

***MANAGEMENT LEVEL RECOMMENDATIONS FOR
BITNER, HIGH ROCK, NUT MOUNTAIN, AND WALL CANYON
HERD MANAGEMENT AREAS***

**WILD HORSE POPULATION ANALYSIS AND
RECOMMENDATIONS FOR
THE BITNER, NUT MOUNTAIN, AND WALL CANYON
HERD MANAGEMENT AREAS**

INTRODUCTION

The purpose of this stocking rate analysis was to determine the current appropriate management levels (AMLs) for wild horses on the Bitner, Nut Mountain, and Wall Canyon Herd Management Areas (HMAs). The most recent monitoring data was used. The existing wild horse population levels, based on a 1977 vegetation inventory and follow up utilization monitoring, were established in 1983 in the Cowhead/Massacre Management Framework Plan 3 (MFP). During the intervening years, the Surprise Resource Area has been gathering wild horses on approximately a four year rotation. This analysis was done to justify the proposed 1993 gathers in compliance with BLM Instructional Memo No. 90-30.

The utilization pattern mapping for these HMAs is in appendix 4. Utilization was done by grazing allotment, because it was part of the range monitoring program. Utilization was determined using a standard BLM method (BLM Technical Reference 4400-3, Section 5.23). Cattle reductions, due to the drought, resulted in some areas only being used by wild horses. The "Key Areas" in the following calculations were riparian areas used only by horses.

The focus was on riparian areas for two reasons. Recent evaluations and observations have found that while upland vegetation was either unchanged or improving, riparian area vegetation and hydrologic conditions were poor and not improving. One of the BLM's management goals is by 1997, 75% of the riparian-wetland areas on public lands will be in properly functioning condition.

The maximum appropriate wild horse population levels were determined using the "Desired Stocking Rate" formula. Wild horse "Actual Use" was calculated from the 1992 counts. The "Desired Key Management Area Utilization" was the utilization maximum from the MFP. "Key Management Area Utilization" came from the 1992 utilization pattern mapping.

The Desired Stocking Level formula is:

$$\frac{\text{Actual Use}}{\text{Key Management Area Utilization}} = \frac{\text{Desired Actual Use}}{\text{Desired Key Management Area Utilization}}$$

(BLM Technical Reference 4400-7, Appendix 2, Page 1, p. 54)

For each HMA the formula was solved for the unknown, "Desired Actual Use." This was the maximum appropriate wild horse use. Maximum wild horse numbers were calculated from the maximum appropriate use. Minimum wild horse numbers were calculated from the maximum numbers using the average rates of increase for structured wild horse herds. The AML was the median of the maximum and minimum numbers.

The abbreviation "AUMs" was used in this analysis. An AUM is an Animal Unit Month. An AUM is the amount of forage required to sustain a cow with a calf for one month. In the 1977 inventory and the MFP an AUM was 800 pounds of useable forage. AUMs are used for forage allocations, because there are standard conversions for the large herbivores on the western rangelands. For example, one horse for one month equals one AUM, while five deer for one month equal one AUM.

Wild Horse Population Adjustments

1. 48 horses (projected '93 population)
- 16 horses minimum allowable
32 horses to be removed
2. In the fall 1993, there will be approximately 48 wild horses on the Bitner HMA. As many of these horses as practical will be gathered. Enough horses will be returned to the range to assure that there are at least 16 wild horses in the HMA. If all 48 horses were gathered 32 would be removed and 16 returned to the HMA.

NUT MOUNTAIN HMA

Forage Demand

1.

Livestock	4,893 AUMs
Wild Horses	<u>960 AUMs</u>
Total	5,853 AUMs
2. Forage demand is livestock active preference plus current wild horse numbers for the allotment.

Maximum Wild Horse Use

1.
$$\frac{\text{Desired Utilization} \times \text{Actual Use}}{\text{Actual Utilization}} = \text{Desired Use}$$
2.
$$\frac{60\% \times 960 \text{ AUMs}}{70\%} = 823 \text{ AUMs Desired Use}$$
3. The Maximum Wild Horse Use was 823 AUMs.

Calculation of Maximum and Minimum Wild Horse Numbers

1. Maximum Numbers
$$823 \text{ AUMs} / 12 \text{ months} = 69 \text{ horses}$$
2. Calculation of Minimum Numbers
(Assumption: Gather every four years)
$$69 \text{ horses (maximum number)} / 1.178 \text{ average population increase } 4^{\text{th}} \text{ year post gather for a structured herd} = 59 \text{ horses}$$

$$59 \text{ horses} / 1.157 \text{ average population increase } 3^{\text{rd}} \text{ year post gather for a structured herd} = 51 \text{ horses}$$

$$51 \text{ horses} / 1.1873 \text{ average population increase } 2^{\text{nd}} \text{ year post gather for a structured herd} = 43 \text{ horses}$$

$$43 \text{ horses} / 1.276 \text{ average population increase } 1^{\text{st}} \text{ year post gather for a structured herd} = 33 \text{ horses (minimum number)}$$

49 horses / 1.157 average population increase 3rd year post gather for a structured herd
= 43 horses

43 horses / 1.1873 average population increase 2nd year post gather for a structured herd
= 36 horses

36 horses / 1.276 average population increase 1st year post gather for a structured herd
= 28 horses (minimum number)

Calculation of AML

1. Calculation of Median

$58 \text{ (max. number)} - 28 \text{ (min. number)} = 30; 30 / 2 = 15; 28 + 15 = 43$

2. The AML is 43 wild horses

Wild Horse Population Adjustments

1. $94 \text{ horses (projected '93 population)}$
 $- 28 \text{ horses minimum allowable}$
66 horses to be removed

2. In the fall 1993, there will be approximately 94 wild horses on the Wall Canyon HMA. As many of these horses as practical will be gathered. Enough horses will be returned to the range to assure that there are at least 28 wild horses in the HMA. If all 94 horses were gathered 66 would be removed and 28 returned to the HMA.

RECOMMENDATIONS

COMPARISON OF MFP MANAGEMENT LEVELS AND MANAGEMENT LEVELS CALCULATED IN THIS ANALYSIS

<u>HMA</u>	<u>MFP MANAGEMENT LEVELS</u>	<u>ANALYSIS MANAGEMENT LEVELS</u>
Bitner	15 - 25	16 - 34
Nut Mountain	30 - 55	33 - 69
Wall Canyon	15 - 25	28 - 58

For the Bitner and Nut Mountain HMAs the management levels from this analysis and the MFP were similar. On the Wall Canyon HMA the management levels from the analysis were about double the MFP management levels.

horses from the east, it would not matter if this HMA were managed for no horses. There would always be horses present.

Using the 15 - 25 management levels means that, at the 1988 - 1992 rate of increase, horses would be above the maximum allowable use level, 58 horses, determined in this analysis, in four years. Implementing the 28 - 58 management levels from this analysis, at the 1988 - 1992 rate of increase, would mean that the horses would be at the maximum allowable use level in two years.