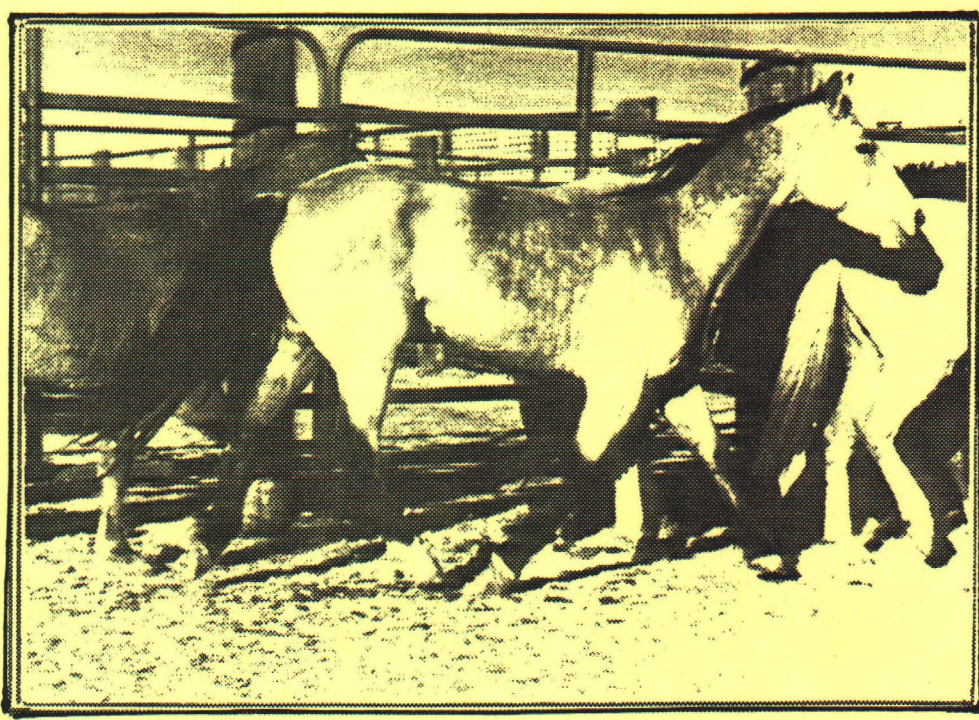


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MODOC/WASHOE  
EXPERIMENTAL STEWARDSHIP PROGRAM

A COMPARISON  
OF MANAGEMENT METHODS FOR  
WILD HORSES



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## ABSTRACT

This paper deals with two methods of managing wild horses.

1. Gate Cut Management or the traditional, non selective removal of wild horses from the public land with no management of the animals left on the public land.
2. Structured Herd Management as practiced in the Susanville District BLM, in California, which consists of the selection of wild horses to be left on the public land and the removal of only young horses.

The conclusion is that Structured Herd Management is less expensive than Gate Cut Management, since the young horses from selected parent stock are highly adoptable. Structured Herd Management eliminates the need to hold and feed large numbers of wild horses off of the public land as is necessary with Gate Cut Management.

Existing laws provide for the option of Structured Herd Management.



## Introduction

With the passage of Public Law 92-195 known as the Wild Horse and Burro Act on December 15, 1971, Congress charged the Secretary of Interior and Agriculture with the Protection, Management and Control of wild free-roaming horses and burros on public lands. These three parts of the charge are stated in the preamble to the law. Responsibility for the law falls to the Bureau of Land Management and the US National Forest Service. This report addresses approaches to management as well as some other aspects of the Wild Horse and Burro Program. There are four parts to this report as follows:

### Part 1.- Background

Background discusses the laws and programs that effect wild horses and burros on public land.

### Part 2.- A Comparison of Management Approaches for Three Wild Horse Herds - Modoc Washoe Experimental Stewardship Program

Part 2. discusses three approaches for managing wild horse herds. An experiment was conducted and results are discussed in this section.

### Part 3.- Implications and Discussion About Gate Cut and Structured Herd Management

Part 3. discusses the implications of management approaches and includes additional data. This part also contains other general discussion about the Wild Horse and Burro Program.

### Part 4. - Recommendations

Part 4. discusses the recommendations for Wild Horse Management.

### Appendix

The Appendix consists of data collected about the management aspects of the program.



## Glossary

The last page of this report is a glossary of terms used in this report.

Note: This experiment and report is not intended as a research project. The purpose of this report is to explore the implications of management approaches. Data from management approaches has been gained from experience and backed by data. This information provides a good indication of what can be expected from different approaches to management. This report also recognizes that there may be several approaches to management that have not been explored in this report.



Part 1.  
Background  
Laws and Regulations Affecting Wild Horses

I. Public Law 92-195, known as the Wild Free-Roaming Horse and Burro Act

The general concept of the Law is to preserve healthy thriving populations of wild horses and burros for future generations to enjoy. Some specific portions of the Law that have a bearing on wild horse management are as follows:

Section 1 - "It is the policy of Congress that wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death; and to accomplish this they are to be considered in the area where presently found, as an integral part of the natural system of the public lands."

Section 3.(a) - "The Secretary shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands."

"All management activities shall be at the minimal feasible level and shall be carried out in consultation with the wildlife agency of the State wherein such lands are located in order to protect the natural ecological balance of all wildlife species which inhabit such lands, particularly endangered wildlife species. Any adjustments in forage allocations on any such lands shall take into consideration the needs of other wildlife species which inhabit such lands."

Section 3.(b) - "Where an area is found to be overpopulated, the Secretary, after consulting with the Advisory Board, may order old, sick, or lame animals to be destroyed in the most humane manner possible, and he may cause additional excess wild free-roaming horses and burros to be captured and removed for private maintenance under humane conditions and care."

Congress, in effect, declared that wild horses be considered as a native wildlife species and that they be managed to achieve and maintain a **Thriving Natural Ecological Balance on the Public Lands**. Natural ecological balance is created by nature not by a Congressional Act. The act did not create a natural ecological niche for wild horses.

Only in a few cases do horses exist in situations approaching a natural ecological niche. This is where there are effective predators, such as mountain lions and bears. In a few herds, mountain lions are keeping the population at constant level. The wolf which could have been an effective predator for horses at one time, is not found on wild horse ranges today.



In the absence of effective predators, the ecological balance must be achieved by the actions of man. This balance must protect the soil, vegetation and other users such as wildlife species (protected by this Law) and livestock which are also legitimate users under other laws.

Section 3.(a) states in part: "All management activities shall be at the minimal feasible level".

An appropriate interpretation is "that level of management necessary to carry out this entire Law and other laws that apply to the management of public rangelands, considering all of the existing factors that affect the execution of these laws". The word "All" implies total not just one or two actions. Sometimes it is necessary to take a more intensive action in one area of management to achieve the least total action. Implications of this report are that "by doing more intensive management of the herd on the ground will result in less intense management for the rest of the program". In this way the entire program requires less intensive action.

## II. Public Law 94-579

Public Law 94-579, known as the "Federal Land Policy and Management Act" passed October 21, 1976, states in its preamble as follows:

"To establish public land policy; to establish guidelines for its administration; to provide for the management, protection, development, and enhancement of the public lands; and for other purposes."

Section 102.(a)(8) states: "The Congress declares that it is the policy of the United States that the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use."

Section 103.(a) states: "Without altering in any way the meaning of the following terms as used in any other statute, whether or not such statute is referred to in, or amended by, this Act, as used in this Act."

"The term "multiple use" means the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people. Multiple use is making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions. The use of some land for less than all of the resources is a consideration. Combinations of balanced and diverse resource uses take into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not



limited to recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values. Harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output."

Section 202(a) states: "The Secretary shall, with public involvement and consistent with the terms and conditions of this Act, develop, maintain, and, when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands. Land use plans shall be developed for the public lands regardless of whether such lands previously have been classified, withdrawn, set aside, or otherwise designated for one or more uses."

Section 202(c)(1) and (7) states: "In the development and revision of land use plans, the Secretary shall - (1) use and observe the principles of multiple use and sustained yield set forth in this and other applicable law; (7) weigh long-term benefits to the public against short-term benefits."

Section 404 provides for the gathering of wild horses and burros using the helicopter.

Public Law 94-579 provides the basic planning for tracts of public lands administered by the Bureau of Land Management. This law calls for multiple use management with long term benefits to the American public.

Wild horse management is a portion of this bigger plan and is subject to restrictions placed on it by such Land Use Plans. The Land Use Plan should set limits on wild horse populations to integrate wild horse use into the total use. Also this plan may place other restrictions on horse use and management.

### III. Public Law 95-514

Public Law 95-514 known as the Public Rangelands Improvement Act was passed on October 25, 1978.

Section 2(a)(6) states: "The Act of December 15, 1971 (85 Stat. 649, 16 U.S.C.1331 et seq.), continues to be successful in its goal to protecting wild free-roaming horses and burros from capture, branding, harassment and death, but that certain amendments are necessary thereto to avoid excessive costs in the administration of the Act, and to facilitate the humane adoption or disposal of excess wild free-roaming horses and burros which because they exceed the carrying capacity of the range, pose a threat to their own habitat, fish, wildlife, recreation, water and soil conservation, domestic livestock grazing and other rangeland values."

Section 2(b)(4) states: "Continue the policy of protecting wild free-roaming horses and burros from capture, branding, harassment, or death, while at the same time



facilitating the removal and disposal of excess wild free-roaming horses and burros which pose a threat to themselves and their habitats and to other rangeland values."

Section 4(b) states: "The Secretary shall manage the public rangelands in accordance with the Taylor Grazing Act (43 U.S.C. 315-315(o)), the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701-1782) and other applicable law consistent with the public rangelands improvement program pursuant to this Act. Except where the land use planning process required pursuant to section 202 of the Federal Land Policy and Management Act (43 U.S.C. 1712) determines otherwise or the Secretary determines and set forth his reasons for this determination that grazing uses should be discontinued (either temporarily or permanently) on certain lands, the goal of such management shall be to improve the range conditions of the public rangelands so that they become as productive as feasible in accordance with the rangeland management objectives established through the land use planning process and consistent with the values and objectives listed in sections 2(a) and (b)(2) of this Act."

Section 12 provides for the "Experimental Stewardship Program" which allows for experimental approaches to managing rangelands.

Section 14 deals with determinations of over population and how to conduct population reductions.

Section 14(b)(1) states in part: "and determine whether appropriate management levels should be achieved by the removal or destruction of excess animals or other options (such as sterilization, or natural controls on population levels".

Note that this portion of Section 14 provides for other options (not specified) for population control.

Section 14(b)(2) in part states: "Where the Secretary determines on the basis of (i) the current inventory of lands within his jurisdiction; (ii) information contained in any land use planning completed pursuant to section 202 of the Federal Land Policy and Management Act of 1976; (iii) information contained in court ordered environmental impact statements as defined in section 2 of the Public Range Lands Improvement Act of 1978; and (iv) such additional information as becomes available to him from time to time, including that information developed in the research study mandated by this section, or in the absence of the information contained in (i-iv) above on the basis of all information currently available to him, that an overpopulation exists on a given area of the public lands and that action is necessary to remove excess animals, he shall immediately remove excess animals from the range so as to achieve appropriate management levels. Such action shall be taken in the following order and priority until all excess animals have been removed so as to restore a thriving natural ecological balance to the range and protect the range from the deterioration associated with overpopulation."



Section 14(2)(b)(B) provides for what has become known as the "Regular Adoption Program" which offers wild horses for private ownership.

Section 14(2)(b)(c) provides for the destruction of wild horses for which no adoption demand exists.

Section 14(b)(3)(b) states: "A new subsection (f) is added to section 2 of the Act of December 15, 1971, as amended (16 U.S.C. 1332) to read as follows: (f) excess animals means wild free-roaming horses or burros (1) which have been removed from an area by the Secretary pursuant to applicable law or, (2) which must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area."

#### IV. Policy For Destruction of Excess Horses

While Public Law 92-195 and Public Law 95-514 allow for the destruction of excess animals, the present BLM policy does not allow for the destruction of healthy animals. This is further backed by the last two appropriation bills that state that "appropriated funds shall not be used for the destruction of healthy animals." Destruction is presently not an option for the disposition of excess horses.

#### V. Fee Waiver

For a period of several years up to September of 1988, the Fee Waiver Program was used to move 20,000 of horses from contract feed yards and other holding facilities into private hands. This program allowed for adoptions through power of attorney. This allowed one individual to gain control over large numbers of horses. After one year, title was granted on these horses. Most of these horses were then sold for slaughter. This program did move many horses out of contract feed yards and other facilities. However, because this was an indirect route to slaughter, it met with disapproval. Fee waiver is no longer an option for disposing of excess horses.

#### VI. Sanctuary Program

The Sanctuary Program came into existence in 1987. This program placed horses in a pasture situation rather than a feed lot situation. This was cheaper and a more natural way to hold excess horses off of the public land. The concept was that these sanctuaries would be funded with BLM funds for a period of three years. After three years, they were to be supported by private funds.

As of November 1990, there are about 3800 horses in sanctuaries. Currently it appears that sanctuaries will not be self supporting by the deadline. Some may only be partially supported by private funds. The BLM does not plan to fund any additional sanctuaries. The Sanctuary Program is no longer an option to provide homes for wild horses off of the public lands.



## VII. Attributes Necessary to Perpetuate Wild Horses

A. There are two attributes necessary to perpetuate wild horses on public lands. These are:

1. The wild horse must have the ability to survive in the habitats where it exists.
2. A wild horse must have the ability to reproduce at a rate that exceeds or at least equals death loss to its population in the habitats where it exists.

It is not necessary that a wild horse have attributes that make it useful or appealing to man. However, a wild horse can have attributes that are useful and or appealing to man and still function extremely well as a wild horse.

B. Physiological Attributes

A wild horse can be considered two wild horses. One is the visible horse, the other is the unseen horse or the physiological horse. The latter deals with how the horse functions as an organism. This is how a horse survives in its environment by handling heat, cold, shortage of forage and water, and other stresses. The physiological aspect of a horse is a function of how this animal evolved to deal with habitats where it lives. Many of these adaptations cannot be seen by just looking at a horse. Some visible defects in a wild population can be eliminated or at least reduced to a large degree by the removal of individual animals. However, physiological defects are hard to determine and remove from a population.

## VIII. Adoptability

A. Adoptability Defined

Adoptability as defined in this report, is the amount of time and degree of ease a horse will adopt in the Regular Adoption Program. Some horses will adopt soon after they are captured. Other horses are halter trained in order to make them more adoptable and some horses will not adopt regardless of training or special handling.

B. Factors affecting ease of adoption are as follows:

1. Age

Age is the single most important factor affecting ease of adoption. Horses that are four years of age and younger are much easier to adopt than are horses five years of age and older. See Appendix 1., 2. and 3.



## 2. Type

Type is a characteristic of size and build. Types of horses range from light, such as a saddle horse, to warmblood, a slightly larger boned horse, to draft type, a large boned horse developed for pulling. In general, most adopters are looking for a horse to ride. These people want either a horse that is either a light horse type or a warmblood type. Also there is a limited demand for draft type animals.

Type need not be a hinderance for adoption. But it is important that BLM knows where the demand is for each type of horse and places horses accordingly.

## 3. Conformation

Conformation is the overall balance and proportion of a horse. It is a very important factor affecting the adoptability of a wild horse. Wild horses will adopt even though they do not fit breed standards as long as they have good conformation. Horses that are not structurally sound, such as having an extremely long back, crooked legs or being ewe-necked, are very difficult to adopt. Even the untrained eye can see many of these faults. Horses that lack proper proportion and balance do not adopt well. A large head and large feet that are out of proportion to the rest of a horse are not viewed as being desirable to most adopters. For the most part a horse's conformation is genetic and can be selected for in a population.

## 4. Color

There are several colors that many adopters seem to prefer. These colors are pinto (a horse that has white spots), palomino, appaloosa and some other flashy or unique colors. Horses with these colors tend to adopt first, but all colors will adopt. Color should be considered as only a minor factor for adoptability.

## 5. The Nutritional Aspect of Adoptability

The effect of a poor level of nutrition plays an important role in the adoptability rate. A horse with poor nutrition will look stunted and will have a different appearance than a horse that is genetically small. A stunted horse lacks appeal to the typical adopter.

## 6. Size As A Factor For Adoption

Size alone need not be a problem for adoption. There is an adopter for every size of horse. However, some small horses show evidence of nutrition problems and conformation faults. This type of horse will not adopt very well. Horses standing from 14 to 15 hands in height are in



demand. Warmblood type horses that stand 16 hands in height are in extremely high demand.

7. Freedom From Injury and Physical Defects

Horses must be free of injuries and physical defects if they are to adopt with ease. Horses that have deformities, large scars, or recent injuries seldom adopt.

IX. Summary

At the present time the Regular Adoption Program is the only method available for the disposition of excess wild horses removed from the public land. If excess horses are not adopted they are held at government expense until they die. The current Public Laws provide methods for making the Regular Adoption Program work through non-specified management approaches. The Public Laws do provide options for management.



Part 2  
Modoc/Washoe Experimental Stewardship  
Wild Horse Management Comparison

I. Introduction

In 1983 the Modoc/Washoe Experimental Stewardship Committee endorsed the concept of experimentation with management methods for selected wild horse herds in the Stewardship Area. The Committee recommended the Susanville District BLM conduct a comparison of management methods in three wild horse herd management areas in the Surprise Resource Area (see Map 1.). The purpose of the experiment was to determine what type of management method would reduce the number of unadoptable horses and at the same time reduce the cost of the Wild Horse and Burro Program.

On the ground management approaches were compared to evaluate their efficiency in improving the management of the Wild Horse Program in the Modoc/Washoe Experimental Stewardship Area. The comparison was not designed as a research project, but was expected to provide information that would lead to practical management that could have program wide applications..

Along with information collected from the experiment, additional data was compiled from other herds in order to expand the data base.

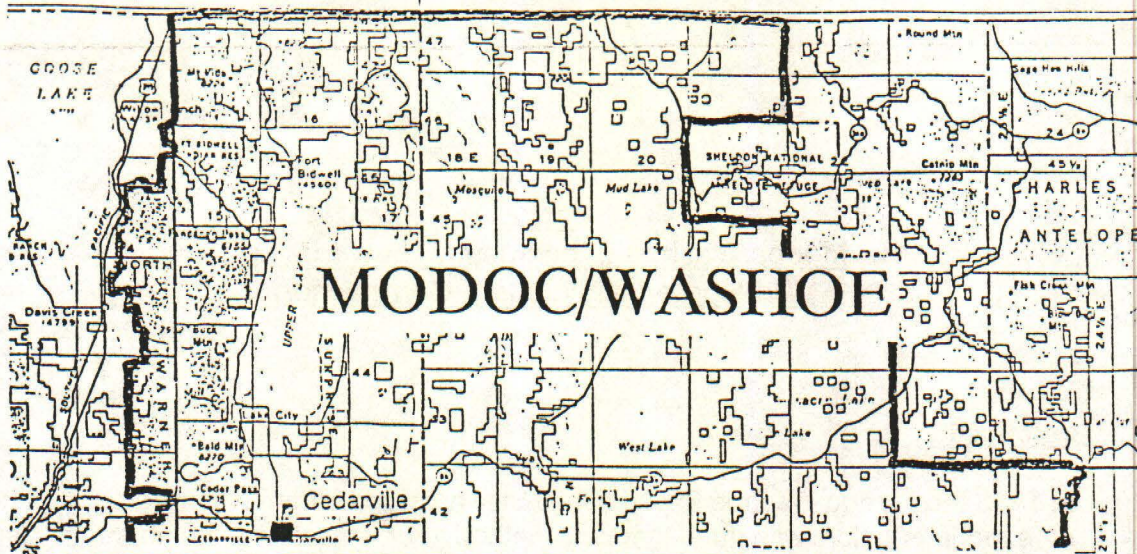
II. Goal

The general goal of the experiment was to compare different management approaches for improving the adoptability of wild horses through the BLM Regular Adoption Program, while maintaining a healthy and viable herd on the public rangelands.

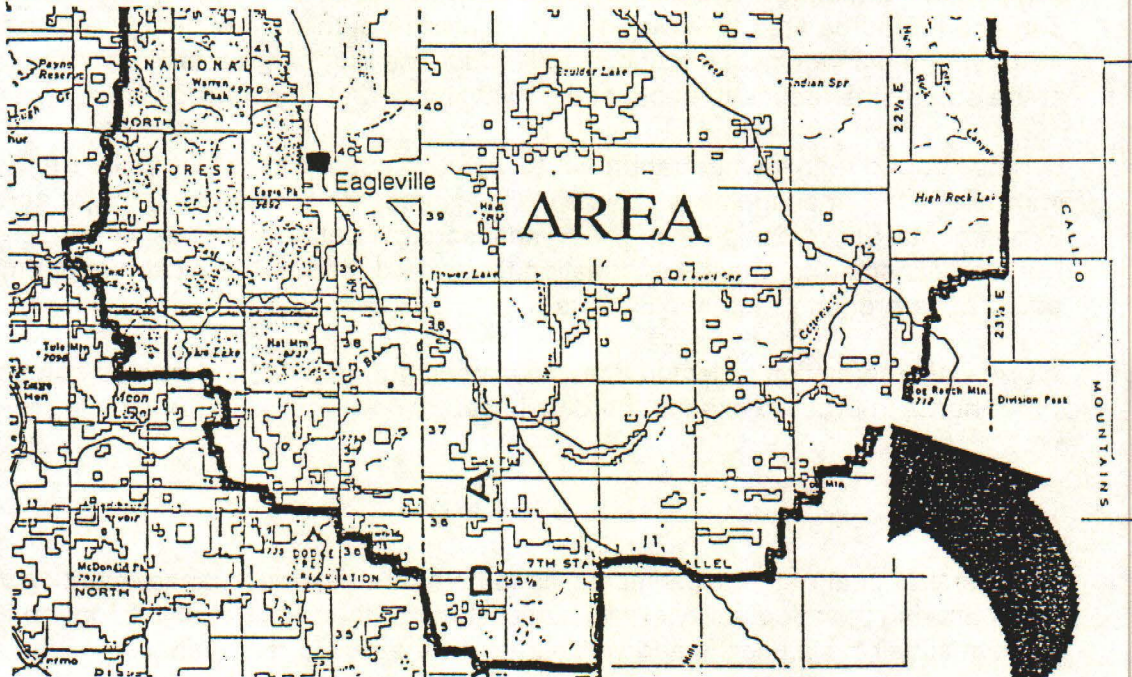
The specific items to be compared in the experiment were:

1. Comparison of the adoptability rate and age between a gate cut herd and two structured herds.
2. Effects of linebreeding verses outbreeding for two Structured Herds.
3. Herd Health.
4. Herd viability.
5. Herd manageability.
6. Management and adoption costs by herd.





**EXPERIMENTAL STEWARDSHIP**

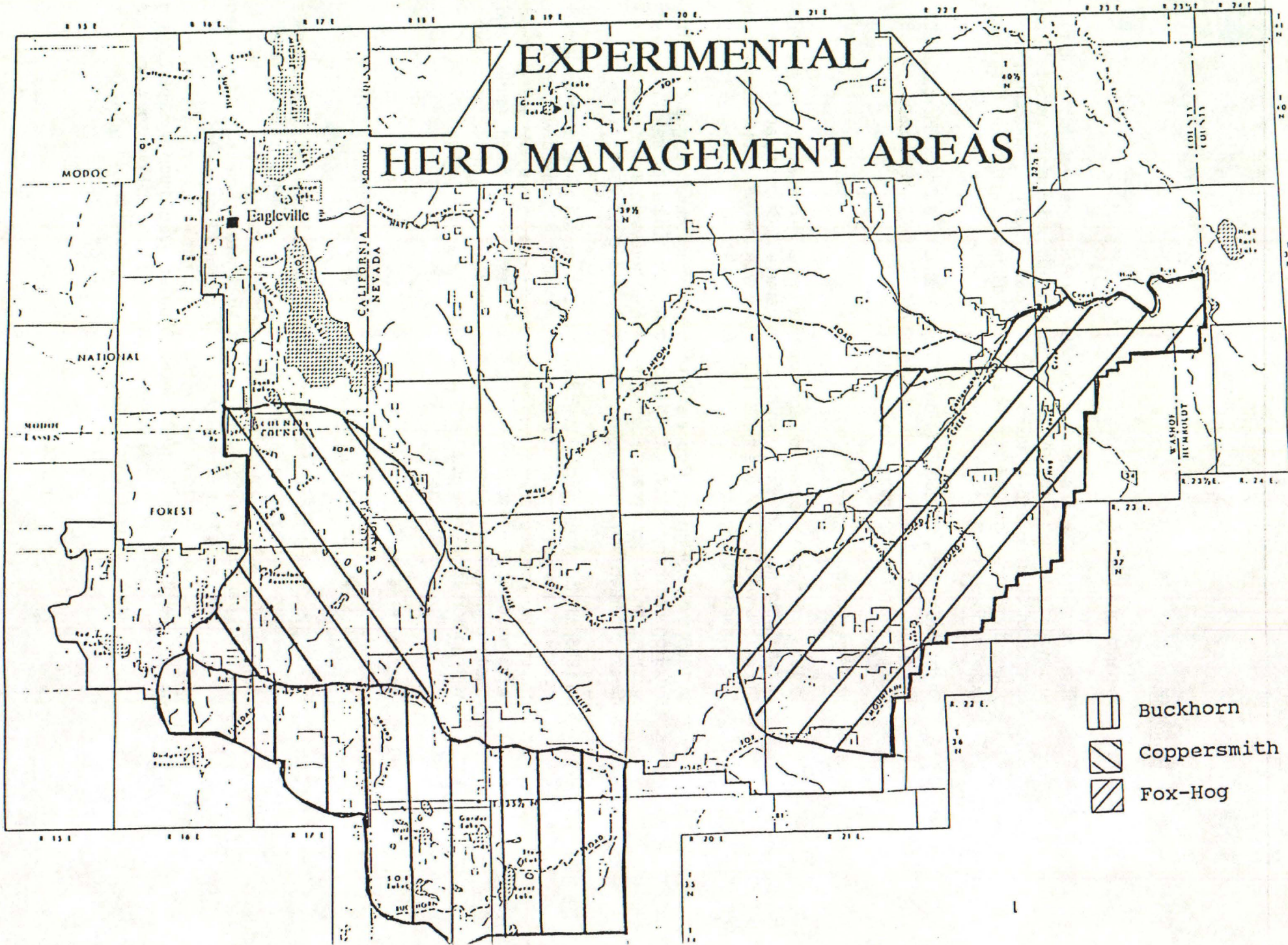





**SUSANVILLE DISTRICT**

Map 1.



# EXPERIMENTAL HERD MANAGEMENT AREAS



-  Buckhorn
-  Coppersmith
-  Fox-Hog

Map 2.



### III. Experiment

#### A. Experimental Design

Three horse herds were selected in the Surprise Resource Area, located in the Susanville District (See Map 2). Each of these herds had a minimum base herd number of 50 head and a maximum of 75 head. The three herds that were selected were fairly isolated from other herds and intermixing between herds was expected to be slight.

Of the three herds, CA-263 Fox-Hog was designated as a Control Herd, CA-262 Buckhorn was designated as a Structured Outbred Herd, and CA-261 Coppersmith as a Structured Linebred Herd.

#### B. Implementation

In 1983, prior to the completion and approval of the Plan of Action for the Wild Horse Comparison, the Buckhorn herd was gathered. Selection and release of the horses was done at this time. The horses were neither photo identified or freeze marked at this time.

In 1985, the Fox-Hog and Coppersmith herds were scheduled for gathering. The Fox-Hog was dropped from gathering due to funding. The Coppersmith herd was gathered and horses were selected. The selected horses were photographed and freeze marked with an "X" high on the left hip and released.

In 1986, all three herds were gathered. The Buckhorn was gathered and selected again. Photos being taken and the horses were freeze marked with an "O" on the left hip. The Coppersmith was gathered and those horses not freeze marked were removed from the herd while a few horses were selected, marked and released. The Fox-Hog herd was gathered down to minimum management levels with no horses being selected and released.

#### C. Location (See Map 2.)

##### 1. Fox-Hog

The Fox-Hog Herd Management Area (HMA) is located about 40-50 miles southeast of Cedarville, California in the Bare Allotment, located in Nevada. The HMA encompasses approximately 94,080 acres. This herd is separated from the Winnemucca District herd to the east by a fence and is separated for a herd to the north by Little High Rock Canyon. The terrain is rolling mountains with large expanses of plateaus with no trees. Elevations range from 5300 feet to 8000 feet. Vegetation is mainly big and low sagebrush with a good understory of perennial grasses with some bitterbrush and mountain mahogany being found at the higher elevations.



2. Buckhorn

The Buckhorn HMA is 40 miles south of Cedarville, California in the Tuledad Allotment that encompasses part of California and Nevada. The HMA is 71,680 acres with rough steep terrain of extensive lava outcroppings. Elevation ranges from 5000 feet to 8000 feet. The major vegetation sites are low sagebrush, mountain sagebrush, bitterbrush and with scattered junipers with a good understory of perennial grass throughout. This herd is separated from a herd to the south by a fence and there is little movement between herds. This herd is separated from the Coppersmith herd to the north by Tuledad Canyon.

3. Coppersmith

The Coppersmith HMA is located 30 miles south of Cedarville, California. The HMA is located in the Tuledad allotment and covers approximately 55,040 acres. The terrain is rough and steep with extensive lava outcroppings. Elevation ranges from 5000 feet to 8000 feet. The major vegetation is junipers, big sagebrush with scattered low sagebrush sites all with a good understory of perennial grass. The HMA is bounded to the south by Tuledad Canyon. This natural barrier allows little to no interchange between this herd and the Buckhorn HMA to the south. The other boundaries are all fenced.

D. Type of Horse

1. Fox-Hog

In 1986 and 1989 during the gathers, all the horses captured were in good physical condition with the exception of some albino horses. Some of these horses had infected eyes, low weight and acted partially blind.

The horses in the HMA vary in color from black, bay, sorrel, palomino and albino. The horses range from 14.5 to 16 hands tall, and weigh from 900-1300 pounds. These horses are large boned, deep chested and rather light in the hind quarters. These horses may have some Thoroughbred and Standardbred stock in them along with some draft horse blood. There is some tendency in these horses to have light hair coat and light pigment skin, such as palominos and albinos. It is thought that this light color is coming from horses across the fence in the Winnemucca District since there is a large number of these horses there. One horse captured in 1989 was a seven year old male with a deformed back. It is not known if this was caused by a genetic problem, disease or an injury at birth. This horse was male but did not have the secondary male characteristics.



2. Buckhorn

The horses in this herd are decedents from calvary remount stock and local ranch stock. Many of these horses have Thoroughbred, Morgan and a little draft blood. These horses are typically large, heavy boned horses, 15-16 hands tall and 950-1300 pounds. These horses are warmblood type. They are heavy boned, have deep wide chests and are moderately heavy in the hindquarters. These horses are black, bay, sorrel, roan and grey. The horses added to this herd in 1986 were light horse type and were pinto and roan colored. One horse added in 1989 was a grey mare from the Devil's Garden that was a warmblood type.

3. Coppersmith

The Coppersmith horses are medium sized horses, 14 to 15 hands tall and around 900-1000 pounds. These horses are mainly bay color with little to no white markings, there are also a few black and sorrel colored horses. These horses have a stocky build. These horses are heavy boned, tend to have short necks and backs, deep chests and well muscled in the hindquarters.

E. Management

1. Fox-Hog

The Fox-Hog herd was selected as a control herd. The control herd for the experiment would only be gathered when horses reached their maximum management number. Only those horse numbers above the minimum management level would be gathered. Horses would be gathered and removed without regards to age, type, sex, color, conformation or breed characteristics. This type of management is referred to as "Gate Cut" and is the traditional method of gathering horses by the BLM.

Horses were gathered in 1986 and in 1989. After the herd was gathered in 1989, all horses were tracked as to their final disposition after one year.

Table 1.  
MANAGEMENT LEVEL

<u>Herd</u>	<u>Minimum Number</u>	<u>Maximum Number</u>
Fox-Hog (CA-263)	50	75



Table 1. (cont.)  
GATHERING

<u>Gather Date</u>	<u>Horses Counted</u>	<u>Horses Removed</u>	<u>Horses Remaining</u>	<u>Horses Released</u>
1986	188	138	50	0
1989	151	101	50	0

The large increase in horses in this allotment is attributed to horses coming into the HMA from the east, across the District boundary fence. The movement of horses from across the fence eliminates some aspects of using this herd as a control. This herd can no longer be used to study the effects of isolation on this size herd. However, because the horses across the fence are also under Gate Cut Management and are a similar type of horse, data from the herd is still useful for comparison purposes. In this report the data base for Gate Cut Management has been expanded to include other herds (see Appendix 1., 2. and 3.).

2. Buckhorn

The Buckhorn herd was designated as an "Outbred Herd." As an Outbred Herd, the Buckhorn horses went through a selection process and those horses that met all the criteria for conformation, size and color and had the capability to produce offspring that would be adoptable, were released back on the range. Along with these horses, additional horses have been added to the herd to increase the genetic diversity of the herd. This base herd remains in the wild for their entire life, even though they might be captured several times. These selected horses are referred to as Base Herd horses.

The selection criteria for the Buckhorn HMA was based on quality, color and size. Quality was based on the commonly excepted conformation standards for a light saddle horse, without regards to a particular breed. All colors were acceptable with preference towards paints, sorrel, palomino, gray and roan. Generally working away from blacks and bays. Dark or black hooves is preferred over light or white hooves. And a fifteen hand or taller horse is preferred. The order of priority is quality, color and size.

This herd was gathered in 1983 (see Table 2). During this time the herd went through a selection process. Horses were selected within the herd to be released back to the range. Two mares from the Dorris herd were added along with a stallion that came from Pasco, Washington. In 1986 the herd was gathered again. Those horses selected to be released were photographed and freeze marked with and "0" on the left hip to identify



them as Base Herd horses. Six horses were added to this herd at this time, 5 mares from the Little High Rock HMA and one mare from Painter Flat, Twin Peak HMA. Of the horses removed from the Base Herd, three were removed because they had hernias. Hernias, or ruptures can be an inheritable trait in horses.

In 1989 almost the entire herd was gathered. All horses marked with an "0" were released back onto the range. One mare from the Devil's Garden was selected and released with these horses. All the horses four years and younger were removed from the base herd except for a few selected young horses and a few foals that were too young to wean. Several adult horses that had not been captured before were removed from the Base Herd because they lacked desired characteristics. None of the horses captured showed signs of ruptures.

Table 2.  
MANAGEMENT LEVEL

<u>Herd</u>	<u>Minimum Number</u>	<u>Maximum Number</u>
Buckhorn (CA-262)	50	75

GATHERING

<u>Gather Date</u>	<u>Horses Counted</u>	<u>Horses Removed</u>	<u>Horses Remaining</u>	<u>Horses Released</u>	<u>Horses in HMA after Gather</u>
1983			15	35(3 added)	50
1986		105	5	48(6 added)	53
1989	107	87	20	38(1 added)	58

Final disposition of the horses removed from the range after one year were tracked through the BLM Wild Horse and Burros Data Base. Herd increase was also monitored.

3. Coppersmith

The Coppersmith herd was selected as the "Linebred Herd" in the experiment. As a Linebred Herd, only horses within the herd were selected. All horses were closely related to each other and genetic diversity is limited in this herd. No horses from outside this herd were added.

Horses were selected in this herd based on quality, size and color. Quality was based on accepted conformation standards for a light saddle horse without regard to a particular breed. Size preferred was a fifteen hand or



taller horse. Color selection was only for dark or black hooves. The order of selection was quality, size and color.

These horses were gathered in 1985 and were selected (see Table 3.). All horses selected at this time were freeze marked with an "X" on their left hip to identify them as Base Herd horses. In 1986 this herd was again gathered and horses not captured in the first gather that were selected as Base Herd horses were freeze marked with the "X". In 1989 this herd was gathered. All horses that were marked were released. All horses four years of age and younger were removed from the Base Herd except for a few selected young horses and a few foals that were too young to wean. These young horses were selected to replace the natural death loss in the herd. One horse removed from the herd was a five year old mare that had been injured and required doctoring.

Table 3.  
MANAGEMENT LEVEL

<u>Herd</u>		<u>Minimum Number</u>		<u>Maximum Number</u>	
Coppersmith (CA-261)		50		75	
GATHERING					
<u>Gather Date</u>	<u>Horses Counted</u>	<u>Horses Removed</u>	<u>Horses Remaining</u>	<u>Horses Released</u>	<u>Horses in HMA after Gather</u>
1985			2	48	50
1986		43	24	26	50
1989	82	52	30	21	51

Final disposition of the horses removed from the range after one year were tracked though the BLM Wild Horse and Burros Data Base. Herd increase was also monitored.

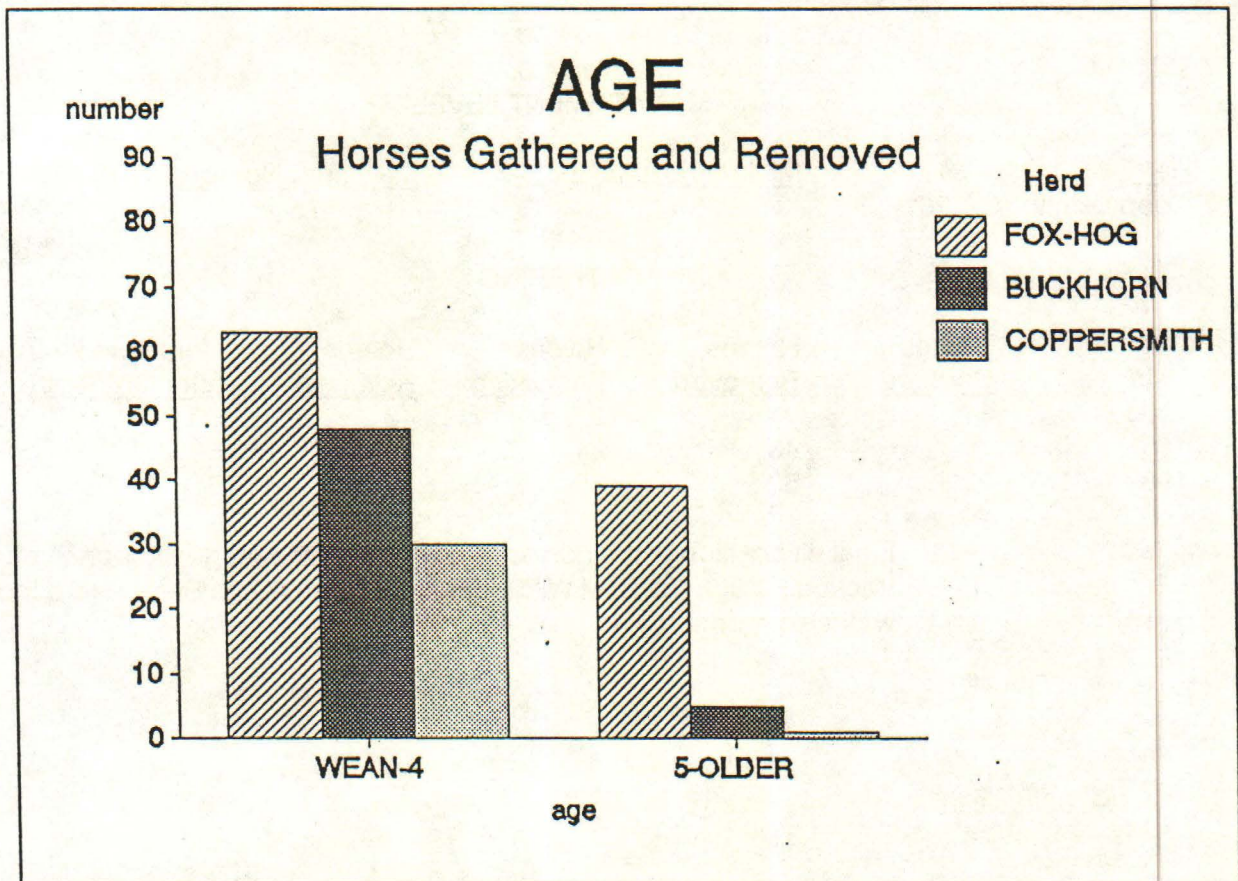


III. Results

A. 1989 Gather

In the fall of 1989 all three herds were gathered. The breakdown of age and number of horses is below in Chart 1. Ages are grouped from weanling (6 months to 1 year) to four years of age and from five years of age and older. These horses are all the horses that were captured and removed, this does not included horses captured and released.

Chart 1.

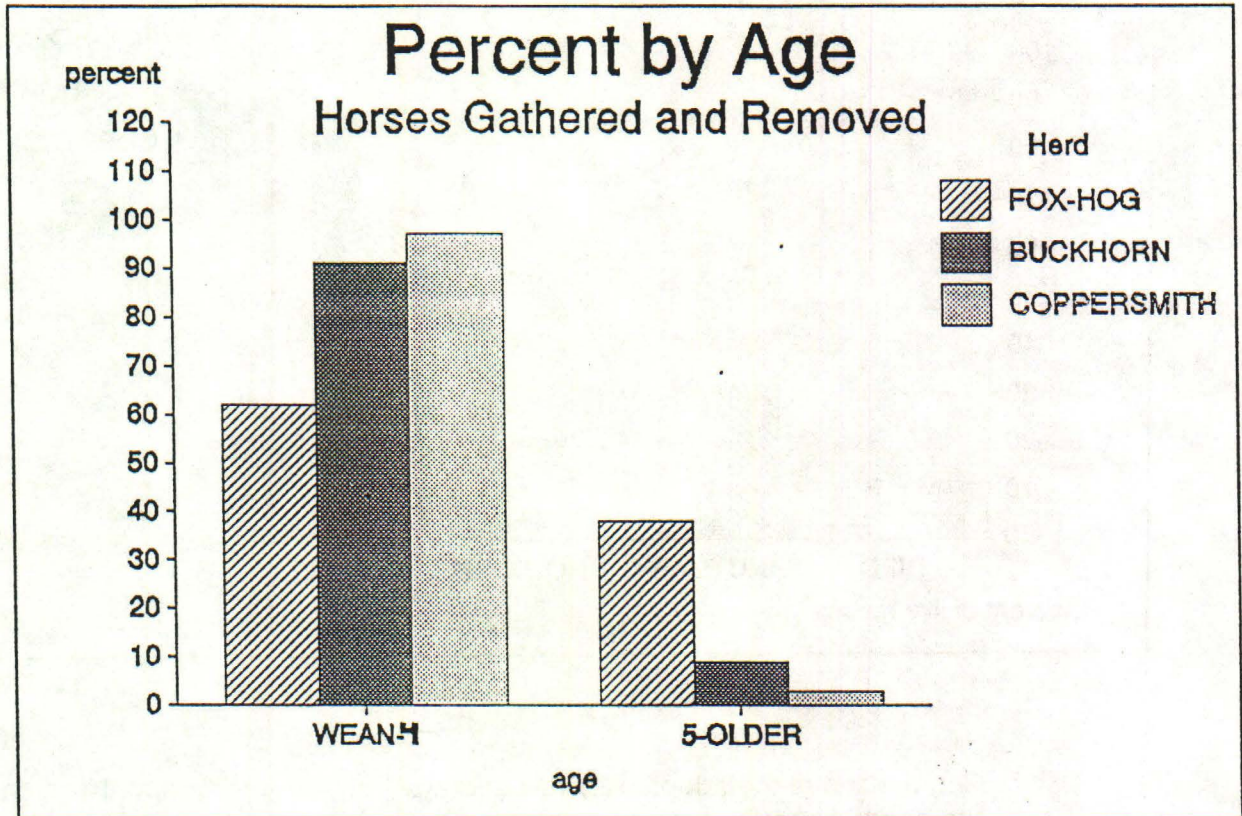


The gather of the Control Herd, Fox Hog, consisted of 62% of the horses being four years of age and younger and 38% that were five and older (see Chart 2.). For Buckhorn herd it was 91% for four and younger and 9% five and older. These older horses were removed from the herd because of their conformation and would have been removed during pervious gathers except they had never been captured until this fall. The Coppersmith herd was 97% young horses and 3%



older horses, which amounted to one unmarked horse that was five years old and would of been turned out except it was injured during captured and required doctoring.

Chart 2.

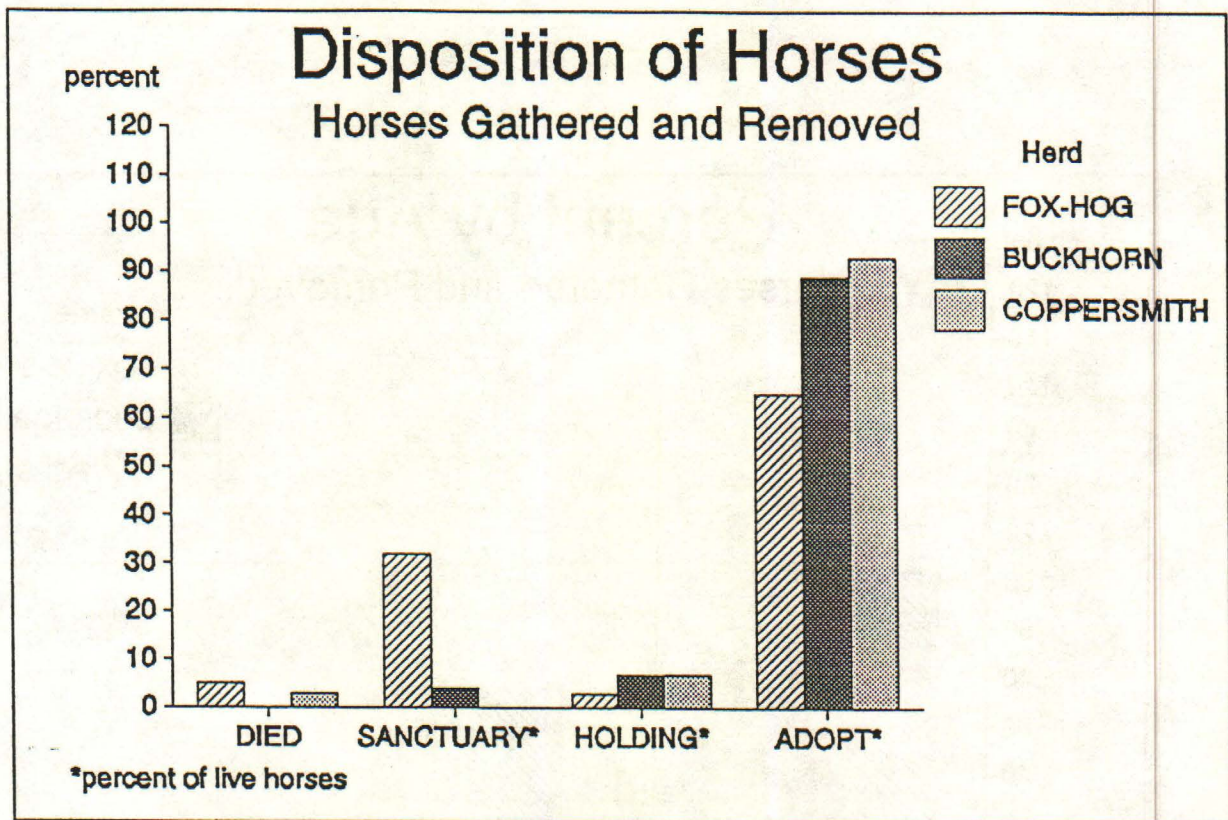


B. Disposition of Horses

Horses were tracked as to how they were placed as of September 30, 1990 (see Chart 3.). The placement of horses was for Fox-Hog; died 5%, of those horses living, 32% went to a sanctuary, 3% are in holding and 65% adopted. Buckhorn, had no death loss, 4% are in a sanctuary, 7% in BLM holding and 89% were adopted. Coppersmith had 3% die, of those living 7% are in BLM holding and 93% have been adopted.



Chart 3.



C. Comparison of the adoptability rate and age between the Control Herd and two Structured Herds.

1. Percent Adoption

As of September 30, 1990 of all the horses gathered and removed from the range, 65% of the Fox Hog horses had been adopted, 89% of the Buckhorn horses had been adopted and 93% of the Coppersmith horses had been adopted (see Table 4.).

Table 4. shows that the young horses (0-4 year old) in all three herds have all adopted very well, with the adoption varying from 95% to 97%. Of the older horses, only a few have been adopted. When all age groups are compared on adoption rates, the two Structured Herds are from 89% to 93% range while the Control Herd is low at 65% adopted.

The difference between the herds is because of those horses that were removed, the two Structured Herds were mostly young horses while the Control Herd varied in ages.



Table 4.  
**HORSES ADOPTED**  
September 30, 1990

HERD	FOX-HOG	BUCKHORN	COPPERSMITH
<b>Weanling to Four Years Old</b>			
Number Gathered/Removed	63	48	30
Number Died	1	0	1
Number Adopted (Live)	59	46	28
Percent Adopted (Live)	95%	96%	97%
<b>Horses 5 Years and Older</b>			
Number Gathered/Removed	39	5	1
Number Died	4	0	0
Number Adopted (Live)	4	1	0
Percent Adopted (Live)	11%	20%	0%
<b>All Ages</b>			
Total Gather/Removed (Live)	97	53	30
Total Adopted (Live)	63	47	28
Percent Adopted (Live)	65%	89%	93%

## 2. Rate of Adoption

The average number of days horses were held before adoption is on Table 5. The rate of adoption was similar for all three herds with a span of 20 days between Buckhorn and Coppersmith. The 20 days is not a significant difference compared to other Gate Cut Herds (see Appendix 1.,2. and 3.) The Fox-Hog and Coppersmith herds were available for adoption at the first satellite adoption in the first week in December. At the second adoption the Buckhorn horses were available.

The possible difference between the average numbers of days for adoption may be due to Buckhorn and Fox-Hog herds having more colored horses than Coppersmith, and on the average the Buckhorn horses had better conformation than the Fox-Hog horses.



At the first satellite adoption Fox-Hog and Coppersmith horses were offered for adoption. The order that horses were adopted were typically colored horses adopting first and the bay and sorrel horses adopting later. Since the Coppersmith herd is mainly bay and sorrel, these horses adopted at a slower rate and towards the end of the adoption. Of the horses taken to the adoption, 59% of the Fox-Hog horses adopted and 37% of the Coppersmith horses adopted.

Only a few older horses were offered for adoption during the year. The four Fox-Hog horses that adopted were 6 years old and adopted in the Eastern States. The one Buckhorn that adopted was a 12 years old mare that was adopted in the Eastern States also. Most of the older horses gathered in 1989 were sent to sanctuaries.

The average days a horse is held before it is adopted is slightly over three months per horse. The reason for this period is that once horses were captured they were not available for adoption until they have had all their vaccinations, approximately 2 to 3 weeks. But not many horses are adopted from the BLM Wild Horse Holding Facility in Litchfield. This is most likely due to the small population in the general area around Susanville. Most of the horses captured in the Susanville District are adopted at the satellite adoptions, which being in mid-December and go until late spring. If a horse is captured October 1, it is at least 70 days before this horse is taken to the first satellite adoption and later for a second satellite adoption. So the adoption time is mainly due to how soon a horse is available for a satellite adoption.

Table 5.  
AVERAGE DAYS HELD BEFORE ADOPTION

HERD	FOX-HOG	BUCKHORN	COPPERSMITH
Number Adopt Wean-4 Yr	59	46	30
Ave. Days/Horse Adopt	110 Days	104 Days	125 Days
Number Adopt 5-Older	4	1	0
Ave Days/Horse Adopt	142 Days	301 Days	0
Ave Days/Horse Adopt All	112 Days	108 Days	125 Days

D. Effects of Linebreeding verses Outbreeding

There was no distinguishable genetic problems in either structured herd. All horses gathered from both herds were healthy and had no physical problems.



The most detectable difference between the herds is the uniformity of the Coppersmith herd compared to the Buckhorn herd. All the horses in the linebred herd are very similar in size and build and most horses are bay, with a few blacks and sorrels. The outbred herd had more of a variety of size along with color.

E. Herd Health.

a. Control Herd

When the Fox-Hog herd was captured in 1989, about half of the horses were in good condition, such as having good body fat, and with no lameness or illness. The other half of the horses had less body fat, especially the nursing mares, and about 10 percent of the horses were thin, had illness or were lame.

One horse captured in this herd was deformed with a curved spine. It is not known if this was genetic, disease or an injury at birth. This horse was seven years old.

Some of the horses were albinos, and most of these horses were thin and had eye problems, such as infections and swollen tissue around the eyes and acted partially blind.

When this herd was gathered in 1986, they were reported as being fair to good physical condition.

2. Outbred Herd

In the 1989 gather, the Buckhorn horses all came in very good condition. Most of the nursing mares had good body fat and all the foals were in good condition.

In 1983 when this herd was gathered most of the horses were reported to be healthy and in good physical condition. When horses were gathered in 1986 they were reported again to be in excellent condition.

3. Linebred Herd

The Coppersmith horses were also in very good condition in 1989. Most of the nursing mares had good body fat.

When this herd was captured in September of 1985 all the horses were reported to be in good condition at that time. BLM Horse Wrangler, Gene Nunn reported that these were the fattest horses he had ever gathered in the District. When the horses were gathered in 1986 they were also in very good condition.



4. Conclusion

The two structured herds were the healthiest in 1989. The health of these horses was a combination of good habitat and no genetic problems that would cause the animal to be unhealthy. The Fox-Hog herd has a problem with limited habitat for the number of horses that were gathered in 1989. This problem is due to the additional horses coming from the Winnemucca District. Other problems with this herd maybe genetic. There are horses with light pigmented skin and eyes, which make them more susceptible to infection and disease and impairs their eyesight.

F. Herd viability.

Herd viability is defined as to the ability of a herd to increase its population. An average rate of increase in the Susanville District is from 15% to 17% for non structured herds. Any herd that is increasing at 13% or less is an indication of some type of viability problem. Below on Table 6. is the increase of each herd during the three year period between 1986 to 1989.

Table 6.  
HERD INCREASE

Herd	FOX-HOG	BUCKHORN	COPPERSMITH
Number of Horses 1986	50	53	50
Number of Horses 1989	152	107	82
Rate of Herd Increase	45%*	26%	18%
Number of Foals 1989	16	19	25
Percent Foals 1989	16%	23%	23%

\*This rate increase is due to additional horses coming into the herd area from Winnemucca.

The Buckhorn and Coppersmith herds were expected to increase by a greater percentage than a gate cut herd. This was due to there being more reproducing females in the population during the first one to two years after being structured compare to the Control Herd. Also the sex ratio after structuring was 35 females to 15 males. This sex ratio also increased the reproduction rate.

The Fox-Hog horses were not as isolated as thought and additional animals came into the herd area during 1986 to 1989. Because of these additional horses the difference in rate of herd increase between the Control Herd and the Structured Herds cannot be compared.



One comparison that can be made is the percent of live foals born in 1989. Both Structured Herds had the same high percent while the Control Herd was less. It was expected that the structured herds would be slightly higher due to the greater number of reproducing females in the population. The Control Herd was slightly below average for the Susanville District.

It was expected that there would be the same number of Coppersmith horses as there was Buckhorn horses in 1989. But when the horses were counted there was 25 fewer horses in Coppersmith than in Buckhorn. One reason for the difference could have been that not all of the Coppersmith horses were counted. Of the horses counted, only 27 horses were freeze marked, leaving 24 horses unaccounted for. Some of the freeze marks on the horses did not show up well and possible some of the marks might not of shown up at all. Also, some of the horses may not of been counted because of the trees and roughness of the country.

Another reason for the difference in number of horses may be that there is a higher death loss in Coppersmith. The Coppersmith horses have limited winter habitat compared to the Buckhorn herd and this might account for higher mortality. This needs to be monitored to determine if this is occurring.

G. Herd manageability.

Herd manageability is the ease with which horses can be captured and handled. The manageability of the herds varied when comparing capturing and handling (see Table 7.). The Fox-Hog herd was easy to gather and over 100 horses were captured at one trap site. Some of the horses captured had to come a greater distance than the two other herds. These horses were easy to handle on the ground and to work with at the corrals.

In the Buckhorn herd some of the horses had been captured one or two times before. These horses were more difficult than Fox-Hog to capture. Some of the horses were not very responsive to the helicopter and were wary of the trap. Of the horses in the herd, the young horses were easiest to gather. The trap was placed in a different location than from 1986. The horses that were gathered were very quiet in the trap and easy to load and handle at the corrals.

Even though these horses were harder to capture, less helicopter time per horse was used to capture these horses than the other two herds. this was due to the trap being centrally located and horses did not have travel far to the trap site.

The Coppersmith herd was the most difficult to capture and handle. The trap was placed in a different location from the last gather. The older horses in this herd were not very responsive to the helicopter and would at times stop in the trees. Some of the older freeze marked horses that ran into the trap turned around and ran by the riders and helicopter, while the young horses ran straight into the trap. While the Coppersmith horses were in the trap they were very nervous and would jump into the panels if they were crowded too much. These horses also tended



to act nervous at the corrals.

By freeze marking the Base Herd horses the helicopter pilot was able to leave groups of marked horses alone and concentrate on groups of horses with unmarked young. This reduced the number of horses that had to be captured, since only the young unmarked animals were going to be removed from the herds. During the last day of the gathering for Buckhorn and Coppersmith, it was possible to separate the freeze marked horses and release them at the trap site.

In conclusion, horses may become more difficult to gather the more times they had been captured. But this can be very variable between herds and individuals horses. The trap site has to be moved each gather because horses can remember where they were last caught. By freeze marking Base Herds horses this has improved the management by reducing the number of horses that have to be gathered and by knowing which horses can be immediately released from a trap site.

It can not be concluded that the horses per helicopter hour varies because of the management method. Trees, topography and distance from trap is a greater variable than management method.

#### H. Management and adoption costs by herd.

It is not possible to determine exact costs for managing each of the three experimental herds. The major cost of feeding unadoptable horses occurs outside of the Susanville District.

Part 3. of this paper discusses problems associated with determining cost for managing wild horses under different management methods. A format has been developed that contains identified cost elements. Actual and estimated costs for the three experimental herds area shown in Appendix 7. and Appendix 8. Only 1989 gathering costs are shown in these appendices.

A cost for which there is a good actual cost record is "horses per helicopter hour" for the 1989 gathers (see Table 7.)

The Buckhorn Herd was gathered twice prior to 1989. In 1989, 5.08 horses were gathered per helicopter hour. The Devils Garden herd, which is a Gate Cut Herd, is found on very gentle sloping plateau with trees. This is at \$170 cost for helicopter to gather each horse. This is as compared to a \$64.52 average helicopter cost for gathering the three experimental herds.



Table 7.  
HELICOPTER COST  
THREE EXPERIMENTAL HERDS 1989

HERD	FOX-HOG	BUCKHORN	COPPERSMITH	AVERAGE
Total Horses Trapped	101	91	52	244
Helicopter Hours	27.5 Hr	17.9 Hr	17.0 Hr	62.4 Hr
Horses/Helicopter Hr	3.67 Hd	5.08 Hd	3.05 Hd	4.34 Hd
Helicopter Cost Per Horse	\$76.29	\$55.12	\$91.80	\$64.52

#### IV. Discussion

Structured Herd Management for the two experimental herds has shown of the horses excessed from the herds that almost 100% adoption can be achieved within a year of capture. This is compared to the Control Herd were only 65% of the horses adopted after one year.

The main factor of adoption for these three herd was the age of the horses. Since a large percent of the Fox-Hog horses were older, then the total number of horses adopted was less. This was due to many of the older horses going to a sanctuary. Of the younger horses, four and less, all three herds had a adoption rate near 100%.

There was no significant difference between the Outbred Herd and the Linebred Herd. There were more problems related to genetics in the gate cut herd than in the other two herds. If structuring of a herd is done with some thought and knowledge of genetics, then there should be little problem with linebreeding in horse herds. The problem is when there is no natural predator to remove horses with weakness that are genetic, then these problems continue to be perpetuated in the herd in each new generation, as was seen in the Fox-Hog herd with albinos. In essence, man though the selection of base herd horses is taking the place of a natural predator by removing horses with genetic problems.

Cost of the program is discussed in the next section. Generally, each herd is unique as to its manageability and costs. One thing that does occur with Structured Herd management is that horses may get more difficult to recapture. To recapture these horses it may be necessary to move trap sites.



Part 3.  
Implications and Discussion About Gate Cut and Structured Herd  
Management

I. Costs

Cost savings from the implementation of Structured Herd Management can not be determined with a high degree of accuracy. The major cost factors that are very difficult to predict are as follows.

1. Cost per Day for Maintaining a Horse

The per day cost of maintaining a horse off of the public land has varied from a low of about \$1.30 per horse per day in a sanctuary, to a high of about \$2.55 per horse per day in a contract feed lot. At the present time it costs about \$1.75 per day to hold a horse at the Litchfield wild horse and burro corrals. For these calculations, contract feed lots and sanctuaries are not considered. It is assumed that unadoptable horses will be held in BLM facilities and prison facilities at an average cost of \$2.00 per horse per day.

2. Length of Holding Period

The second big question is "how long will the average unadoptable horse be maintained off of the public land, before it dies or is disposed of in some other manner"?

In attempts to predict costs in the past, two projections have been used as follows:

- a. Two years in a contract feed lot @ \$2.55 per horse day.
- b. Three years in a sanctuary @ \$1.30 per horse day.

Using either of these assumptions a considerable saving can be shown for Structured Herd Management over Gate Cut Management.

Since the Fee Waiver Program has been eliminated and sanctuaries are no longer an option, a new length of holding time to calculate the cost of holding a horse off of the public land is needed.



The South Dakota Wild Horse Sanctuary reports that only about 10.2% of the horses brought to the sanctuary since August of 1988 (when the sanctuary was established) have died up to November of 1990. This is a period of two years and two months. This can not be calculated into a percent of annual death loss. However, it does indicate that these horses, once placed in a sanctuary, on the average, can be expected to survive for a considerable time. For calculations in this discussion it will be assumed that once an unadoptable horse is removed from public land that it will survive for eight years and be held in some type of BLM financed holding facility.

3. Percent of Horses Adopted

Another variable is the percent of horses that adopt in the Regular Adoption Program from different herds.

Data from 1106 horses from Gate Cut Herds gathered in nine gathers between October of 1986 and November of 1989 shows that about 50% of horses had been adopted in the Regular Adoption Program as of September 1990. This data shows a great variation of adoption rates for different herds. The range was from a low of 18.4% to a high of 66.7% of live horses. Horses that died in holding were removed from the calculations. Also one gather of eight horses falls out side of these ranges. (See Appendix 1.).

Data from these 1106 head of horses removed in nine gathers may or may not be an accurate sample from which to make projections of adoptability of horses from Gate Cut Management, for the entire program. However, since this sample includes gathers from both California and Nevada herds, it is assumed to have a good degree of credibility. To project for a specific herd, data for that herd should be pulled and analyzed.

For this discussion it is assumed that on the average only 50% of the horses gathered from Gate Cut Herds will adopt in the Regular Adoption Program.

4. Rate of Reproduction

The rate of reproduction is also another factor that will influence the cost effectiveness of Structured Herd Management. For example, if a herd has zero rate of annual increase there would be no financial reason to structure a herd. For these calculations it is assumed a Base Herd (minimum management level) of 50 horses will increase at an annual rate of 17%. This will bring the herd to 94 horses in four foal crops. This will require the removal of 44 horses to bring the herd back to the minimum management level. Of these 44 horses 22 will be assumed to be adoptable and 22 will be assumed to be unadoptable.

For these calculations it is assumed that the Structured Management Herd will increase from 50 horses to 103 horses in four foal crops. This will require that 53 head be removed to bring the herd back to minimum management level. Of these 53 horses 50 head (94.3%) will be adoptable. Note that the annual rate of



increase for the Structured Herd, over a four year period will be a slightly higher rate of annual increase than with Gate Cut Management. This is because that every four years many of the young horses, foals and yearlings, or non-reproducing females are removed from the herd. This leaves a Base Herd with mostly reproductive females in the herd. This increase has been calculated and has also proven to be the case on the ground with the Buckhorn herd.

The purpose of this discussion is to deal with an average Gate Cut and Structured Herd situation. For specific herds, records will indicate the expected increase.

Other costs will also vary with each situation. However these will be of less importance than the four items discussed above.

Based on data and experience with both methods a comparison by each cost item is shown in Appendix 7. The calculations shown in Appendix 7. are based on management being in place on the ground for each of the management methods. However, costs for the initial gather may vary very little from the costs shown.

In summary, Appendix 7. shows that it costs 2.3 times as much for Gate Cut Management than it does for Structured Herd Management. In dollars, this is an annual cost of \$328 for each Base Herd horse managed under Structured Herd Management and an annual cost of \$756 for each Base Herd horse managed under Gate Cut Management. These dollar amounts should be used as an indication for comparing the two methods rather than being considered as an exact dollar cost. Note, that these figures are based on actual cost data and estimates based on experience with these management methods.

The figures of \$328 annual cost of managing each Base Herd horse with Structured Herd Management and \$756 annual cost for each Base Herd horse managed under Gate Cut Management seems very high. However, consider the present cost of the BLM's Wild Horse and Burro Program with a annual cost of about \$320 for each animal on the range. This is arrived at as follows:

<u>BLM 1989</u> <u>Expenditures</u>	<u>Horses and Burros</u> <u>On Range</u>	<u>Annual Cost</u> <u>Per Animal</u>
\$14,897,000	46,549	\$320/Animal

Note that the above calculation included burros which are managed at much less cost since they adopt quickly.

Also note that many herds using public lands have not been brought to proper management levels and placed under management.

If 35,000 Base Herd animals are managed under Structured Herd Management at a annual cost of \$328 the total management cost would be \$11,480,000.

Appendix 8. demonstrates that from a financial stand point, that a 81.8% adoption rate



for a Gate Cut Herd would equal a 94.3% adoption rate for a Structured Herd. This is a 31% higher adoption rate for Gate Cut herds than exists. Even if the 82% level of adoption was reached this will still leave 18% of the horses unadopted. There is no longer a place to hold this many wild horses off of the public land.

## II. Implementation of Structured Herd Management

The ease of changing from Gate Cut Management to Structured Herd Management varies from herd to herd. Some of the factors that cause these variations are as follows:

1. The number of young horses (four years and less) and the number of older horses (five and up) in a given herd.
2. The total number in the herd as compared to the number to be left in the Base Herd.
3. The general type, or quality of the herd and how well the horses are accepted by the typical adopter.
4. The ease of gathering. Gathering horses in open, rolling sagebrush country is the easiest while gathering horses in rough, rocky, tree covered country can be very difficult.

### A. Age

Age is important as to how easy it is to structure a herd. An example of this is, if there are 200 horses in a herd that is to be reduced to a minimum management level of 100 Base Herd horses then of these 200 horses, about 35% or 70 head, will be five years of age and older. This means that all of the horses five years of age and older will fit into the Base Herd. These 70 horses (five years of age and older) will make up 70% of the 100 head Base Herd, leaving room for 30 head of young horses (4 years of age and younger) in the Base Herd. This will give a Base Herd of 70% old and 30% young horses.

If 50% of the original Gate Cut Herd was five and older the Base Herd would still absorb all of these older horses. Very seldom is there this many old horses in a Gate Cut Herd.

Note data collected from Gate Cut Herds in the Susanville District, California shows 35.2% of the horses to be five years of age and older while data collected from Nevada Gate Cut Herds shows 44.6% of the horses to be five years of age and older. See Appendix 9.

If there was to be a reduction of 300 horses down to 100 horses then there will be 105 older horses ( $35\% \times 300 = 105$ ). This would cause a few older horses not to be retained in the Base Herd.



B. Quality of Horses

The quality of horses can be a problem for structuring some herds. Quality (for this discussion) is defined as the acceptability of horses in the Regular Adoption Program.

In some herds there are a number of horses that will not adopt regardless of age. The unadoptable horses have wound up in sanctuaries or at holding facilities. If a horse is diseased or has severe physical problems, it may be destroyed.

C. Ease of Gathering

In rough timbered country, such as juniper or pine forest, the gathering of horses can be very difficult. This increases the cost of gathering and gathering to near 100% level may be impossible. To fully structure a herd, 100% of the horses need to be captured. However, even when this is not possible, a partial structuring can be accomplished that would cost less in the long run than only removing excess horses of all ages.

Gathering horses in the Susanville District has shown that of the horses captured, there is almost always room to return the older horses as Base Herd horses. Of the older horses removed it has generally been for reasons other than lack of space in the Base Herd.

For some of the herds in the Susanville District it has not been practical to gather 100% of the horses to initiate structuring. In computing costs a 100% gather has been used for comparing Structured Herd Management with Gate Cut Management. However, often there have been a few horses left on the range. With a few exceptions, a lack of a complete gather has not been a problem in structuring herds.

The Red Rock Herd in the Susanville District has been a problem herd for structuring. The problem has been gathering. It has been difficult to removed just the excess horses. This herd ranges in thickly covered juniper woodlands and has always been difficult to gather. Regardless of the management used the gathering strategy needs to be improved.

The Devils Garden herd, managed in cooperation with the Modoc National Forest has presented some gathering problems because of juniper and pine forests. If this herd is to be placed under Structured Herd Management, work will be needed to improve gathering success.

Experience indicates that the long term cost saving are sufficient to structure or partially structure all herds in the Susanville District. Indications are that a well structured herd makes the Wild Horse Program more cost effective and easier to manage in years to come. Money spent in achieving a well structured herd in the



beginning will pay off in money saved and horses adopted in the future.

III. Implications of Using Age as the Only Selection Criteria for Selective Removal

The question has been asked "What would be the consequences of doing selective removal of horses, using age as the only criteria for selection?" This question is answered in three parts as follows:

A. Rate of Adoptability

Data indicates that if horses five years of age and older are released back on the range and that if horses four years of age and younger are excessed, that many of these young horses will not adopt in the Regular Adoption Program.

Disposition records (see Appendix 2.) for 657 horses, four years of age and younger, gathered in 1986-1989 from nine Gate Cut gathers, as of September 30, 1990, is as follows:

1. 657 horses four years of age and younger were gathered.
2. 65 horses or 9.9% died after being held for an average of 170 days.
3. 592 horses or 90.1% survived.

The following disposition has been made of these 592 horses as of September 30, 1990:

1. 140 horses or 23.7% were placed in Fee Waiver Program after an average holding time of 298 days.
2. 18 horses or 3% were placed in sanctuaries with an average holding time of 996 days.
3. 12 horses or 2.4% are still in BLM holding or prison facilities with an average holding time of 461 days.
4. 422 or 71.3% of the surviving 592 horses were placed in the Regular Adoption Program with an average holding time of 214 days.
5. Of the 657 horses four years of age and younger gathered, 422 or 64.2% were adopted in the Regular Adoption Program.

Data in Appendix 2. shows that there is a great variation in adoptability of horses four years of age and younger from herd to herd. The low for adoptability for surviving horses was 29.7% and the high was 95.2% (this disregards one small gather).



Very little selection, other than age, is needed to achieve a high degree of adoptability for some herds. A great deal of selection, other than age, is needed to achieve a high degree of adoptability for other herds.

B. Health of the Herd

Here again, each herd is a situation with individual characteristics. The effect on the well-being of the herd would vary for each herd if horses were removed using age as the only criteria for removal. Herds with inherited characteristics such as a rupture, lack of pigment, extreme poor conformation, crooked legs, feet, etc. can be expected to retain these characteristics in the herd unless horses carrying these characteristics are removed. Over time these may or may not become more concentrated and increase in frequency in the herd. The lack of pigment has a great chance of increasing in a herd. Also other undesirable characteristics have a great chance of being concentrated unless there is selective removal. If there are effective predators preying on the herd, there is a greater chance that certain undesirable characteristics may be eliminated without selection by man. It seems that there is a good reason for at least some selective removal, other than age, for the future well being of the herds.

C. Effect of Nutrition

The effect of a poor level of nutrition probably plays a big role in the poor adoptability rate for some herds. Selection of parent horses that are kept on the range can not overcome stunting resulting from poor nutrition. A stunted horse has a different appearance than a horse that is genetically small. A stunted horse lacks appeal to the typical adopter.

A proper level of nutrition consists of an adequate amount of water as well as adequate quantity and quality of forage. Cold Desert habitats and some Hot Desert habitats can provide wild horses with all of their nutritional needs as long as the populations are kept in balance with the existing habitats. To obtain a high level of adoptability of excess horses at least three actions are required as follows:

1. Provide a proper level of nutrition.
2. Excess horses at four years of age and younger.
3. Select parent stock left in the breeding herd.

Excessing horses based on age as the only criteria will not solve the problem of unadoptables. If age (four years and younger) is the only criteria used to excess horses and or a habitat balance is not reached, about 30% (on the average) can be expected to be unadoptable. If only age is used as a selection criteria, the number of unadoptable horses will continue to build.



#### IV. Implications of Selecting Horses Ten Years of Age and Younger for Removal

There is discussion of doing selective removal, consisting of gathering and removing all horses gathered from a herd that are 10 years of age and younger and returning horses 11 years of age and older to the breeding herd left on the range. This can be expected to reduce the number of unadoptables by some. Collected data indicates that this will fall short of solving the problem of unadoptability since only about 11% of the typical Gate Cut Herd is 11 years of age and older (see Appendix 9.). It is granted that these horses are of the age that are the most difficult to adopt. However, there remains a large number of horses from the age 5 to 10 that will also be difficult to adopt. Returning horses to the range that are 5 years of age and older solves much of the problem of unadoptability rather than just a small portion of it.

#### V. Considerations Other Than Dollars

While cost savings are important, Structured Herd Management offers other advantages that should not be overlooked. Some other important features are as follows:

- A. Herd integrity can be maintained with greater success than with Gate Cut Management.
- B. Inherited problems such as the tendency for ruptures, lack of pigment and other problems can be eliminated.
- C. Logical additions can be made to small herds. Horses of similar type from another herd can added and returned to the range with the Base Herd.
- D. As an area is gathered down to a small number a more accurate count can be made of the herd.
- E. The negative impression to the public, created by wild horses standing in feed lots or being held in sanctuaries off of the public land can be eliminated. A much more positive impression, to the public, is made by keeping wild free roaming horses on public land, as Congress intended.

#### VI. The Prison Program

The Susanville District has a small prison training program for gentling and training wild horses prior to the time they are offered for adoption in the Regular Adoption Program. The program is handled under a cooperative agreement between the California Department of Corrections and the Bureau of Land Management.

Under the agreement, the BLM supplies all of the feed and veterinarian costs for the horses while they are at the prison. All other costs have been funded by the prison. The BLM pays no fee for the gentling and training.



As of October 22, 1990, 308 horses had completed the program and had been offered for adoption. Of these 305 horses or 99% have been adopted. These horses have varied in age from foals up to nine years of age. At the start, most of the horses were young. As the program has progressed older horses have been placed in the program. Only horses with a good expectation of adoption have been placed in the program. This has been a factor in the high percentage of adoptions.

While the program has been effective in placing the older horses selected for the program, it is costly. Older horses are held at the prison facility for about four months each while being gentled and trained. Also some of these horses are held at the wild horse and burro corrals at Litchfield for a period of several months before being placed in the program.

Horses 4 years of age and younger adopted from Structured Herds in 1989 adopted in an average of 104 days (see Appendix 5.). Horses five years of age and older, selected for training at the California Correctional Center adopted in a average of 241 days (see Appendix 10.). About half of the horses from the California 1989 gather sent to the Canyon City Prison, in Canyon City Colorado, had adopted as of November 28, 1990. The adopted horses from Canyon City, adopted in an average of 289 days from capture to adoption. The other half are still at Canyon City and are building holding time. The average holding time for the limited data in Appendix 10. for both the California and Colorado facilities is 259 days. At \$2.00 per day, this is a feed bill of \$518 for each of these horses.

It appears that it may take as much as 350 days and a \$700 feed bill to put the typical horse, five years of age and older, through a Prison Training Program. This does not count other expenses. The Prison Training Program can be an aid to the Regular Adoption Program. However, it is not a substitute for Structured Herd Management. It is cheaper to release older horses back on the range and gather and remove younger horses. The Prison Program can be especially helpful during the implementation of Structured Herd Management.

After all the California horse herds have been placed under Structured Herd Management there will no longer be a need for the program in California. Horses for the program will need to come from out-of-state if the program is to continue.

## VII. Managing Wild Horses As Part Of Total Resource Management

Wild horse management is one part of the total resource management within each herd management area. Even on designated "Wild Horse Ranges", wild horse management is only a part of the total. If each segment of the total is not managed then some other segment will suffer. The Land Use Plan is the proper place to integrate the uses and needs of each area. This then is carried down into activity plans.

This basic planning as related to wild horse management is most evident in setting the management levels of use for wild horses and livestock. Both of these major users must be controlled and managed to protect one use against the other use, to protect individual



animals against each other, and to protect the land and vegetation from both. Nothing competes against a wild horse like another wild horse in the same area.

This paper deals primarily with management to prevent the buildup of wild horses off of the public land. However, this to a degree relates back to nutrition (water and forage) necessary to allow wild horses to approach or reach their genetic potential. This in turn relates to a reasonable allocation of resources. Horses are part of the total rangeland management picture.



Part 4.  
Recommendations

Comparing data from the management of three herds in the Modoc/Washoe Experimental Stewardship Program, data collected for other herds, as well as calculations and projections lead to the recommendations which follow:

It is recommended that the management of wild horses be converted from Gate Cut Management to Structured Herd Management to the extent that is practical. It is recommended that this be done as soon as possible. To do otherwise will encumber the Wild Horse Program with the cost of supporting large numbers of wild horses off of the public lands, at great cost, for many years to come.

It is recommended that Structured Herd Management be refined and improved on as experience is gained.

It is recommended that other options for managing wild horses be studied and considered in the future.



**DISPOSITION  
GATE CUT MANAGEMENT  
HORSES ALL AGES 9 GATHERS AND 1106 HORSES**

HERD	NV305	NV511	NV209	CA252	CA252	CA252	CA263	CA263	NV508	TOTAL
CAPTURE DATE	10/86	8/89	1/88	11/89	9/87	10/86	7/86	10/89	4/89	
DAYS LAPSE	1324	303	874	326	996	1316	1415	340	418	
TOTAL HD	215	20	416	49	75	62	159	102	8	1106
NO. DIED	52	2	69	3	8	8	15	5	1	163
% DIED	24.2	10.0	16.6	6.1	10.7	12.9	9.4	4.9	12.5	14.7
TOTAL DAYS HOLD	9368	235	8329	115	324	519	1589	501	59	21039
AVE DAYS HOLD	180	118	121	38	41	65	106	100	59	129
NO. LIVE	163	18	347	46	67	54	144	97	7	943
% LIVE	75.8	90.0	83.4	93.9	89.3	87.1	90.6	95.1	87.5	85.3
NO. FEE WAIVER	114	0	149	0	26	18	52	0	0	359
% FEE WAIVER	69.9		42.9		38.8	33.3	36.1			38.1
TOTAL DAYS HOLD	33913		23265		5178	6670	26404			95430
AVE. DAYS HOLD	297		156		199	370	508			265
NO. SANCTUARY	10	5	16	0	4	0	0	31	0	66
% SANCTUARY	6.2	27.8	4.6		6.0			32.0		7.0
TOTAL DAYS HOLD	12881	1515	13914		3939			10632		42881
AVE. DAYS HOLD	1288	303	870		984			343		650
BLM. HOLDING	9	5	3	17	0	0	0	3	2	39
% HOLDING	5.5	27.8	.9	37.0				3.1	28.6	4.1
TOTAL DAYS HOLD	9214	1515	2599	5462				1019	765	20574
AVE DAYS HOLD	1024	303	866	321				340	383	528
ADOPTED	30	8	179	29	37	36	92	63	5	479
% ADOPTED	18.4	44.4	51.6	63.0	55.2	66.7	63.9	64.9	71.4	50.8
TOTAL DAYS HOLD	11871	1149	51120	4156	3789	9160	17966	7053	558	106882
AVE DAYS HOLD	396	144	286	143	102	254	195	112	112	223
% GATHER/ADOPT	14.0	40.0	43.0	59.2	49.3	58.1	57.7	61.8	62.5	43.3
TOTAL DAYS HOLD	77247	4414	99227	9733	13230	16349	45959	19205	1382	286746
AVE DAYS HOLD	359	221	239	199	176	264	289	188	173	259
DATE	6/90	6/90	6/90	9/90	6/90	6/90	6/90	9/90	6/90	



**DISPOSITION  
GATE CUT MANAGEMENT  
657 HORSES 4 YEARS OF AGE AND YOUNGER**

HERD	NV305	NV511	NV209	CA252	CA252	CA252	CA263	CA263	NV508	TOTAL
CAPTURE DATE	10/86	8/89	1/88	11/89	9/87	10/86	7/86	10/89	4/89	
DAYS LAPSE	1324	303	874	326	996	1316	1415	340	418	
TOTAL HD	122	11	228	32	53	41	103	63	4	657
NO. DIED	21	0	28	2	5	4	4	1	0	65
% DIED	17.2		12.3	6.2	9.4	9.8	3.9	1.6		9.9
TOTAL DAYS HOLD	6801		3225	94	174	104	425	207		11030
AVE DAYS HOLD	324		115	47	35	26	106	207		170
NO. LIVE HORSES	101	11	200	30	48	37	99	62	4	592
% LIVE HORSES	82.8	100.0	87.7	93.8	90.6	90.2	96.1	98.4	100.0	90.1
NO. FEE WAIVER	61	0	52	0	8	6	13	0	0	140
% FEE WAIVER	60.4		26.0		16.7	16.2	13.1			23.7
TOTAL DAYS HOLD	23421		8347		2267	2115	5594			41744
AVE DAYS HOLD	384		161		283	353	430			298
NO. SANCTUARY	10	4	1	0	3	0	0	0	0	18
% SANCTUARY	9.9	36.4	.5		6.2					3.0
TOTAL DAYS HOLD	12881	1212	869		2958					17920
AVE DAYS HOLD	1288	303	869		986					996
NO. BLM HOLD	0	1	3	5	0	0	0	3	0	12
% BLM HOLD		9.1	1.5	16.7				4.8		2.0
TOTAL DAYS HOLD		303	2599	1610				1019		5531
AVE DAYS HOLD		303	866	322				340		461
NO. ADOPT	30	6	144	25	37	31	86	59	4	422
% ADOPT	29.7	54.5	72.0	83.3	77.1	83.8	86.9	95.2	100.0	71.3
TOTAL DAYS HOLD	11871	838	41686	3029	3789	6139	15965	6489	511	90315
AVE DAYS HOLD	396	140	289	121	102	198	186	110	128	214
% GATHER/ADOPT	24.6	54.5	63.2	78.1	69.8	75.6	83.5	93.7	100.0	64.2
TOTAL DAYS HOLD	54974	2353	56724	4733	9188	8358	21984	7713	511	166538
AVE DAYS HOLD	451	214	249	148	173	204	213	122	128	253
DATE DATA	6/90	6/90	6/90	9/30	6/90	6/90	6/90	9/90	6/90	



**DISPOSITION  
GATE CUT MANAGEMENT  
449 HORSES 5 YEARS OF AGE AND OLDER**

HERD	NV305	NV511	NV209	CA252	CA252	CA252	CA263	CA263	NV508	TOTAL
CAPTURE DATE	10/86	8/89	1/88	11/89	9/87	10/86	7/86	10/89	4/89	
DAYS LAPSE	1324	303	874	326	996	1316	1415	340	418	
TOTAL HD	93	9	188	17	22	21	56	39	4	449
NO. DIED	31	2	41	1	3	4	11	4	1	98
% DIED	33.3	22.2	21.8	5.9	13.6	19.0	19.6	10.3	25.0	21.8
TOTAL DAYS HOLD	2567	235	5106	21	150	415	1164	294	59	10011
AVE DAYS HOLD	83	118	125	21	50	104	106	74	59	102
NO. LIVE HORSES	62	7	147	16	19	17	45	35	3	351
% LIVE HORSES	66.7	77.8	78.2	94.1	86.4	81.0	80.4	89.7	75.0	78.2
NO. FEE WAIVER	53	0	97	0	18	12	39	0	0	219
% FEE WAIVER	85.5		66.0		94.7	70.6	86.7			62.4
TOTAL DAYS HOLD	10492		14918		2911	4555	20810			53686
AVE DAYS HOLD	198		154		162	380	534			245
NO. SANCTUARY	0	1	15	0	1	0	0	31	0	48
% SANCTUARY		14.3	10.2		5.3			88.6		13.7
TOTAL DAYS HOLD		303	13045		981			10632		24961
AVE DAYS HOLD		303	870		981			343		520
NO. BLM HOLD	9	4	0	12	0	0	0	0	2	27
% BLM HOLD	14.5	57.1		75.0					66.7	7.7
TOTAL DAYS HOLD	9214	1212		3852					765	15043
AVE DAYS HOLD	1024	303		321					383	557
NO. ADOPT	0	2	35	4	0	5	6	4	1	57
% ADOPT		28.6	23.8	25.0		29.4	13.3	11.4	33.3	16.2
TOTAL DAYS HOLD		311	9434	1127		3021	2001	566	47	16507
AVE DAYS HOLD		156	270	282		604	334	142	47	290
% GATHER/ADOPT	0	22.2	18.6	23.5	0	23.8	10.7	10.3	25.0	12.7
TOTAL DAYS HOLD	22273	2061	42503	5000	4042	7991	23975	11492	871	120208
AVE DAYS HOLD	239	229	226	294	184	381	428	295	218	267
DATE DATA	6/90	6/90	6/90	9/90	6/90	6/90	6/90	9/90	6/90	



**DISPOSITION  
STRUCTURED HERD MANAGEMENT  
ALL AGES 3 GATHERS AND 106 HORSES**

HERD	CA-261	CA-262	OR-010	TOTAL
DATE CAPTURE	10/89	11/89	10/89	
LAPSE DAYS	334	318	361	
TOTAL HEAD	31	53	22	106
NO. DIED	1	0	2	3
% DIED	3.2%		9.1%	2.8%
DAYS HOLDING	140		114	254
AVE. DAY HOLD	140		57	85
NO. LIVE	30	53	20	103
% LIVE	96.7%	100%	90.9%	97.2%
FEE WAIVER	0	0	0	0
NO. SANCTUARY	0	0	1	1
% SANCTUARY			5%	.9%
DAYS HOLDING			361	361
AVE. DAY HOLD			361	361
NO. BLM HOLD	2	6	0	8
% BLM HOLDING	6.7%	11.3%		7.8%
DAYS HOLDING	668	1904		2572
AVE. DAYS HOLD	334	317		286
NO. ADOPTED	28	47	19	94
% ADOPTED	93.3%	88.7%	95.0%	91.3%
DAYS HOLDING	3490	5062	1736	10288
AVE. DAYS HOLD	125	107	91	109
% ADOPT GATHER	90.3%	88.7%	86.4%	88.7%
TOTAL DAYS HOLD	4298	6966	2211	13475
AVE DAY HOLD	139	131	101	127
DATE OF DATA	9/30/90	9/30/90	9/30/90	9/30/90



**DISPOSITION  
STRUCTURED HERD MANAGEMENT  
95 HORSES 4 YEARS OF AGE AND YOUNGER**

HERD	CA-261	CA-262	OR-010	TOTAL
DATE	10/89	11/89	10/89	
LAPSE DAYS	334	318	361	
TOTAL HEAD	30	48	17	95
NO. DIED	1	0	1	2
% DIED	3.3%		5.9%	2.1%
DAYS HOLDING	140		14	154
AVE. DAY HOLD	140		14	77
NO. LIVE	29	48	16	93
% LIVE	96.7%	100%	94.1%	97.9%
FEE WAIVER	0	0	0	0
NO. SANCTUARY	0	0	0	0
% SANCTUARY				
DAYS HOLDING				
AVE. DAY HOLD				
NO. BLM HOLD	1	2	0	3
% BLM HOLDING	3.3%	4.2%		
DAYS HOLDING	334	636		970
AVE. DAYS HOLD	334	318		323
NO. ADOPTED	28	46	16	90
% ADOPTED	96.6%	95.8%	100.0%	96.8%
DAYS HOLDING	3490	4761	1189	9440
AVE. DAYS HOLD	125	104	74	104
% ADOPT GATHER	93.3%	95.8%	94.1%	94.7%
TOTAL DAYS HOLD	3964	5397	1203	10564
AVE DAY HOLD	132	112	71	111
DATA COMPILED	9/30/90	9/30/90	9/30/90	9/30/90



**DISPOSITION  
STRUCTURED HERD MANAGEMENT  
11 HORSES 5 YEARS OF AGE AND OLDER**

HERD	CA-261	CA-262	OR-010	TOTAL
DATE CAPTURED	10/89	11/89	10/89	
LAPSE DAYS	334	318	361	
TOTAL HEAD	1	5	5	11
NO. DIED	0	0	1	1
% DIED			20.0%	9.1%
DAYS HOLDING			100	100
AVE. DAY HOLD			100	100
NO. LIVE	1	5	4	10
% LIVE	100%	100%	80.0%	90.9%
FEE WAIVER	0	0	0	0
NO. SANCTUARY	0	0	1	1
% SANCTUARY	0	0	25.0%	10.0%
DAYS HOLDING			361	361
AVE. DAY HOLD			361	361
NO. BLM HOLD	1	4	0	5
% BLM HOLDING	100%	80.0%		50.0%
DAYS HOLDING	334	1268		1602
AVE. DAYS HOLD	334	317		321
NO. ADOPTED	0	1	3	4
% ADOPTED		20.0%	75.0%	40.0%
DAYS HOLDING		301	547	848
AVE. DAYS HOLD		301	182	212
% ADOPT GATHER		20.0%	60.0%	36.4%
TOTAL DAYS HOLD	334	1569	1008	2911
AVE DAY HOLD	334	314	202	265
DATA COMPILED	9/30/90	9/30/90	9/30/90	9/30/90



**COST COMPARISON**  
**HERD TO BE GATHERED AT FOUR YEAR INTERVALS**  
**50 HEAD BASE HERD UNIT**

STRUCTURED HERD		GATE CUT HERD	
TRAP SET UP	\$1300	TRAP SET UP	\$1300
<b>HELICOPTER</b>			
BASE HERD 50 50 HD @ 3.5 HD /HR = 14.3 HR @ \$410/HR	\$5863	BASE HERD LEFT ON RANGE	\$0
EXCESS HORSES 53 HD @ 3.5 HD /HR = 15.1 HR @ \$410/HR	\$6191	EXCESS HORSES 44 HD @ 4 HD/HR = 11 HR @ \$410/HR	\$4510
<b>TRANSPORTATION 125 MI. FROM TRAP TO FACILITY</b>			
BASE HERD 50 HD. @ \$12/HD.	\$600	BASE HERD ON RANGE	\$0
EXCESS 53 HD. @ \$12/HD.	\$636	EXCESS 44 HD. @ \$12/HD	\$528
<b>OTHER VEHICLE AND EQUIPMENT</b>			
BASE HERD 50 HD. @ \$5/HD.	\$250	BASE HERD ON RANGE	\$0
EXCESS HORSES 53 HD. @ \$5/HD	\$265	EXCESS 44 HD. @ \$5/HD	\$220
<b>LABOR (NOT TRUCK DRIVING)</b>			
BASE HERD 50 HD. @ \$20/HD.	\$1000	BASE HERD ON RANGE	\$0
EXCESS HORSES 53 HD. @ \$20/HD.	\$1060	EXCESS 44 HD. @ \$20/HD	\$880
<b>PROCESSING SUPPLIES</b>			
BASE HERD 50 HD. @ \$5/HD.	\$250	BASE HERD ON RANGE	\$0
EXCESS HORSES 53 HD. @ \$30/HD.	\$1590	EXCESS 44 HD. @ \$30/HD	\$1320
<b>VET FOR PROCESSING</b>			
EXCESS HORSES 53 HD. @ \$12/HD	\$636	EXCESS 44 HD @ \$12/HD	\$528
<b>PROCESSING LABOR</b>			
BASE HERD 50 HD @ \$2/HD	\$100	BASE HERD ON RANGE	\$0
EXCESS HORSES 53 HD @ \$4/HD	\$212	EXCESS 44 HD @ \$4/HD	\$176

CONTINUED



CONTINUED

<b>SELECTING AND SORTING FOR BASE HERD</b>			
BASE HERD 50 HD @ \$5/HD	\$250	BASE HERD ON RANGE	\$0
<b>FEED AND CARE AT THE FACILITY</b>			
BASE HERD 50 HD 7 DAYS @ \$2/DAY/HD	\$700	BASE HERD ON RANGE	\$0
<b>TRANSPORTATION BACK TO RANGE</b>			
BASE HERD 50 HD @ \$12/HD	\$600	BASE HERD ON RANGE	\$0
<b>FEEDING ADOPTABLES AT THE FACILITY</b>			
50 HD @ 150 DAYS @ \$2/DAY	\$15000	22 HD FOR 150 DAYS @ \$2/DAY	\$6600
<b>ADOPTION OF EXCESS HORSES</b>			
50 HD @ \$350/HD INCLUDES TRANSPORTATION	\$17500	22 HD @ \$350/HD INCLUDES TRANSPORTATION	\$7700
<b>SHIPPING UNADOPTABLE HORSES</b>			
SHIP BY GBL 1600 MI 3 HD @ \$75/HD	\$225	SHIP BY GBL 1600 MI 22 HD @ \$75/HD	\$1650
<b>FEEDING UNADOPTABLES</b>			
3 HD @ \$2/DAY FOR 8 YR @ \$730/YR/HD	\$17520	22 HD @ \$2/DAY FOR 8 YR @ \$730/YR/HD	\$128480
<b>TOTAL COST</b>	<b>\$71748</b>	<b>TOTAL COST</b>	<b>\$153892</b>

<b>LESS ADOPTION FEE</b>			
50 HD @ \$125/HD	\$6250	22 HD @ \$125/HD	\$2750
<b>NET COST TO MANAGE BASE HERD</b>			
50 HD FOR 4 YR	\$65498	50 HD FOR 4 YR	\$151142
<b>ANNUAL COST TO MANAGE 50 HD BASE HERD</b>			
50 HD/YR (\$65498/4 YR)	\$16375	50 HD/YR (\$151142/4 YR)	\$37786

CONTINUED



CONTINUED

<i>ANNUAL NET COST OF EACH BASE HERD HORSE</i>			
<i>\$16375/50 HD</i>	<i>\$328</i>	<i>\$37786/50 HD</i>	<i>\$756</i>
<i>COST RATIO</i>	<i>1</i>	<i>TO</i>	<i>2.3</i>
<i>% OF EXCESS ADOPT</i>			
<i>50 ADOPT OF 53 HD TOTAL</i>	<i>94.3%</i>	<i>22 ADOPT OF 44 TOTAL HD</i>	<i>50.0%</i>



**BREAK EVEN COST COMPARISON  
HERD TO BE GATHERED AT FOUR YEAR INTERVALS  
50 HEAD BASE HERD UNIT**

STRUCTURED HERD		GATE CUT HERD	
TRAP SET UP	\$1300	TRAP SET UP	\$1300
<b>HELICOPTER</b>			
BASE HERD 50 HD @ 3.5 HD /HR = 14.3 HR @ \$410/HR	\$5863	BASE HERD LEFT ON RANGE	\$0
EXCESS HORSES 53 HD @ 3.5 HD /HR = 15.1 HR @ \$410/HR	\$6191	EXCESS HORSES 44 HD @ 4 HD/HR = 11 HR @ \$410/HR	\$4510
<b>TRANSPORTATION 125 MI. FROM TRAP TO FACILITY</b>			
BASE HERD 50 HD @ \$12/HD	\$600	BASE HERD ON RANGE	\$0
EXCESS 53 HD @ \$12/HD	\$636	EXCESS 44 HD @ \$12/HD	\$528
<b>OTHER VEHICLE AND EQUIPMENT</b>			
BASE HERD 50 HD @ \$5/HD	\$250	BASE HERD ON RANGE	\$0
EXCESS HORSES 53 HD @ \$5/HD	\$265	EXCESS 44 HD @ \$5/HD	\$220
<b>LABOR (NOT TRUCK DRIVING)</b>			
BASE HERD 50 HD @ \$20/HD	\$1000	BASE HERD ON RANGE	\$0
EXCESS HORSES 53 HD @ \$20/HD	\$1060	EXCESS 44 HD @ \$20/HD	\$880
<b>PROCESSING SUPPLIES</b>			
BASE HERD 50 HD @ \$5/HD	\$250	BASE HERD ON RANGE	\$0
EXCESS HORSES 53 HD @ \$30/HD	\$1590	EXCESS 44 HD @ \$30/HD	\$1320
<b>VET FOR PROCESSING</b>			
EXCESS HORSES 53 HD @ \$12/HD	\$636	EXCESS 44 HD @ \$12/HD	\$528
<b>PROCESSING LABOR</b>			
BASE HERD 50 HD @ \$2/HD	\$100	BASE HERD ON RANGE	\$0
EXCESS HORSES 53 HD @ \$4/HD	\$212	EXCESS 44 HD @ \$4/HD	\$176

CONTINUED



CONTINUED

<b>SELECTING AND SORTING FOR BASE HERD</b>			
BASE HERD 50 HD @ \$5/HD	\$250	BASE HERD ON RANGE	\$0
<b>FEED AND CARE AT THE FACILITY</b>			
BASE HERD 50 HD FOR 7 DAYS @ \$2/DAY/HD	\$700	BASE HERD ON RANGE	\$0
<b>TRANSPORTATION BACK TO RANGE</b>			
BASE HERD 50 HD @ \$12/HD	\$600	BASE HERD ON RANGE	\$0
<b>FEEDING ADOPTABLES AT THE FACILITY</b>			
50 HD FOR 150 DAYS @ \$2/DAY	\$15000	8 HD FOR 150 DAYS @ \$2/DAY	\$2400
<b>ADOPTION OF EXCESS HORSES</b>			
50 HD @ \$350/HD INCLUDES TRANSPORTATION	\$17500	36 HD @ \$350/HD INCLUDES TRANSPORTATION	\$12600
<b>SHIPPING UNADOPTABLE HORSES</b>			
SHIP BY GBL 1600 MI 3 HD @ \$75/HD	\$225	SHIP BY GBL 1600 MI 8 HD @ \$75/HD	\$600
<b>FEEDING UNADOPTABLES</b>			
3 HD @ \$2/DAY FOR 8 YR @ \$730/YR/HD	\$17520	8 HD @ \$2/DAY FOR 8 YR @ \$730/YR/HD	\$46720
<b>TOTAL COST</b>	<b>\$71748</b>	<b>TOTAL COST</b>	<b>\$71782</b>

<b>LESS ADOPTION FEE</b>			
50 HD @ \$125/HD	\$6250	36 HD @ \$125/HD	\$4500
<b>NET COST TO MANAGE BASE HERD</b>			
50 HD FOR 4 YR	\$65498	50 HD FOR 4 YR	\$67282
<b>ANNUAL COST TO MANAGE 50 HD BASE HERD</b>			
50 HD.YR (\$65498/4 YR)	\$16375	50 HD/YR (\$67282/4 YR)	\$16820

CONTINUED



CONTINUED

<i>ANNUAL NET COST OF EACH BASE HERD HORSE</i>			
<i>\$16375/50 HD</i>	<i>\$328</i>	<i>\$16820/50 HD</i>	<i>\$336</i>
<i>COST RATIO</i>	<i>1</i>	<i>TO</i>	<i>1</i>
<i>% OF EXCESS ADOPT</i>			
<i>50 ADOPT/53 HD TOTAL</i>	<i>94.3%</i>	<i>36 ADOPT/44 TOTAL HD</i>	<i>81.8%</i>



**AGE STRUCTURE SUMMARY  
GATE CUT GATHER**

<b>CALIFORNIA</b>								
<b>HERD</b>	<b>NO.</b>	<b>DATE GATHER</b>	<b>AGE 0-4</b>		<b>AGE 5-10</b>		<b>AGE 11+</b>	
			<b>NO.</b>	<b>%</b>	<b>NO.</b>	<b>%</b>	<b>NO.</b>	<b>%</b>
5 HERDS SUSANVILLE	913	FY-81,82	587	64.3	219	24.0	107	11.7
CA-252 DEVILS GARDEN	184	FY-86,90	127	69.0	46	25.0	11	6.0
CA-263 FOX-HOG	101	FY-89	62	61.4	25	24.9	14	13.7
CA-263, 264 HIGH ROCK	159	FY-86	103	64.8	44	27.7	12	7.5
<b>SUB TOTAL</b>	<b>1357</b>		<b>879</b>	<b>64.8</b>	<b>334</b>	<b>24.6</b>	<b>144</b>	<b>10.6</b>
HORSES 0-4 61.7%								
HORSES 5-+ 35.2%								
<b>NEVADA</b>								
NV-305 PINE NUT	215	FY-87	122	56.7	52	24.2	41	19.1
NV-209 BLACK ROCK E.	416	FY-88	228	54.8	152	36.5	36	8.7
NV-511 AMAROGSA	20	FY-89	11	55.0	7	35.0	2	10.0
NV-508 MT. STIRLING	8	FY-89	4	50.0	3	37.5	1	12.5
<b>SUB TOTAL</b>	<b>659</b>		<b>365</b>	<b>55.4</b>	<b>214</b>	<b>32.5</b>	<b>80</b>	<b>12.1</b>
HORSES 0-4 55.4%								
HORSES 5-+ 44.6%								
<b>TOTAL</b>	<b>2016</b>		<b>1244</b>	<b>61.7</b>	<b>548</b>	<b>27.2</b>	<b>224</b>	<b>11.1</b>
HORSES 0-4 61.7%								
HORSES 5-+ 38.3%								



**BLM HOLDING TIME FOR PRISON TRAINED HORSES  
5 YEARS OF AGE AND OLDER**

HERD	FREEZE MARK	CAPTURE AGE	CAPTURE DATE	ADOPTION DATE	TRAINING FACILITY	BLM HOLDING DAYS
CA-267	83206088	5	88-10-06	89-02-18	SUSANVILLE, CA	135
CA-654	84195368	6	90-02-05	90-08-24	SUSANVILLE, CA	200
CA-705	81206753	9	90-01-19	90-08-24	SUSANVILLE, CA	217
CA-654	84195353	6	90-02-05	90-08-24	SUSANVILLE, CA	200
NV-217	84522305	3	87-12-03	89-03-04	SUSANVILLE, CA	457
CA-252	81205810	7	88-09-13	89-05-10	SUSANVILLE, CA	239
<b>SUB TOTAL</b>						<b>1448</b>
<b>AVE. DAYS/HORSE</b>						<b>286</b>
CA-252	83206665	6	89-11-08	90-07-27	CANYON CITY, CO	261
CA-252	82206653	7	89-11-08	90-07-27	CANYON CITY, CO	261
CA-252	82206678	7	89-11-08	90-09-14	CANYON CITY, CO	310
CA-252	79206685	10	89-11-08	90-09-14	CANYON CITY, CO	310
<b>SUB TOTAL</b>						<b>1142</b>
<b>AVE DAYS/HORSE</b>						<b>259</b>
<b>TOTAL</b>						<b>2590</b>
<b>AVE DAYS/HORSE</b>						<b>259</b>

As of 11-28-90, over half of the horses from California sent to the Canyon City Facility from the October 1989 gather were still at the facility in training or being held for training. At \$2.00 per day, for 259 days, the feed and care cost for horses shown in the data above would be \$518.

It appears that the typical prison trained horse will be in the pipeline for as much as 350 days or have a \$700 feed and care bill against it.



## GLOSSARY

### Base Herd

In the Susanville District there are minimum and maximum management levels set for each area. Regardless of the method of management, the herd in that area is reduced to the minimum management level at each gather. The Base Herd is the same as the minimum management level or the minimum breeding herd for a specific area. The Base Herd is a set population for an area from which all increases are computed.

### Gate Cut Management or Gate Cut Herd

Gate Cut is a term used in the livestock industry, that applies to segregating animals. It refers to taking the first animals through a gate without any other sorting or selection.

In this report, the term Gate Cut Management refers to the management of wild horses or burros where the only management action is population control by removing the animals that are closest to the trap or easiest to remove from a given area. With this method of management there is no selection of animals to retain or remove. This has been the traditional method of management for many wild horse and burro herds.

The term Gate Cut Herd refers to herds that are managed by Gate Cut Management.

### Structured Herd Management or Structured Herd

A herd of wild horses can be structured in a number of ways. However, as used in this report, Structured Herd Management refers to a very specific method of management. This method consists of:

1. Selecting parent stock to be retained in the Base Herd that appear to have the ability to produce off-spring that will be highly adoptable in the Regular Adoption Program.  
To the extent possible these retained horses are selected from horses that are five years of age and older.
2. Retaining selected Base Herd horses on the range until they live out their natural life.
3. Replacing death loss in the selected Base Herd with horses four years of age and younger.
4. Removing excess horses from the herd prior to the time they reach five years of age.



This method of management requires selection of horses based on both age and appearance.

A **Structured Herd** is a term that is applied to horses managed with **Structured Herd Management**.

#### Annual Rate of Increase or Annual Increase

The **annual rate of increase** is the increase that occurs in a given herd during a one year timeframe. This is expressed as a percentage.

In the Susanville District, the **annual increase** is calculated from January 1 to January 1 the following year. An example follows:

On January 1, 1990 there are 100 horses in a herd.

On January 1, 1991 the herd has increased to 120 horses.

This is an annual increase of 20% for this herd for that one year period.

This is a valid rate of **annual increase** provided that no horses have left the area or entered the area. The death loss in a herd must be off set by foals being born into the herd before an increase occurs.

#### Regular Adoption Program and Fee Waiver Program

The **Regular Adoption Program** is the adoption program used for placing wild horses and burros into private hands. The adopter pays a \$125 adoption fee for a wild horse and \$75 for a wild burro. After providing proper care for the animal for one year, title is passed to the adopter, making the adopter the owner of the animal.

The **Fee Waiver Program** differs from the **Regular Adoption Program** in that the adopter pays no adoption fee or a small adoption fee.

The most common use of the **Fee Waiver Program** was for one party, through the power of attorney, to adopt large numbers of horses. In a year, after they received title they sold the horses, generally to slaughter plants. This type of **Fee Waiver** is no longer in use. However, it is still possible to adopt one or more horses under very special circumstances at a reduced fee or no fee.

#### Out Bred

**Out bred** is a term used for a continual introduction of outside genes into the gene pool of a herd.

#### Linebred - Inbred

**Linebreeding** and **inbreeding** as used in this report indicates that all the animals in the herd are closely related. It does not indicate a specific plan of breeding. It indicates that no outside genes are being added to the gene pool.



## Types of Horses

Horses occur with a wide difference of bone and muscular structure. These differences are shown as the relationship of the distance around the chest (measured just behind the withers) to the height of the horse (measured at the withers).

Using this relationship, horses are generally placed in three categories as follows:

### Draft

The draft horse has the greatest chest measurement in relationship to its height. These horses have heavy bone and muscular structure and are used primarily for pulling or draft, hence the name. These horses were first bred to pack knights in full armor.

### Light

Light horses have the least distance around the chest as compared to height. These horses are lighter bones and have less muscular structure than do draft horses. These horses are generally used for riding.

These horses are also referred to as hot blooded horses since they had their origins in the desert.

### Warm Blood

Warm blooded horses fall between draft and light horses in structure. Many breeds and grade horses fall into this category. These horses vary greatly with some approaching draft horses and many approaching light horses in structure.

Wild horses, on the range, often fall into this category and have resulted from crosses between draft and light horses.