CALIFORNIA’S WILD HORSES AND BURROS

Jesica Johnston
B.A., California State University, Sacramento, 2007

THESIS

Submitted in partial satisfaction of
the requirements for the degree of

MASTER OF ARTS

in

SPECIAL MAJOR
(Environmental Planning)

at

CALIFORNIA STATE UNIVERSITY, SACRAMENTO

FALL
2011
Student: Jesica Johnston

I certify that this student has met the requirements for format contained in the University format manual, and that this thesis is suitable for shelving in the Library and credit is to be awarded for the thesis.

_______________________, Associate Dean
Chevelle Newsome, Ph. D. Date

Office of Graduate Studies
Abstract

of

CALIFORNIA’S WILD HORSES AND BURROS

by

Jesica Johnston

Wild free roaming horses and burros are again disappearing from public lands. The increasing demands on public resources have created significant controversy and competition leading to political rather than science driven policies for the Bureau of Land Management’s Wild Horse and Burro Program.

A case study approach was used to provide an in depth analysis of the Bureau of Land Management’s Eagle Lake Field Office’s management considerations for wild horses and burros in California’s Twin Peaks Herd Management Area. The study followed the planning process and removal of wild horses and burros from the Twin Peaks Herd Management Area. The research methods included participating in the public planning process, review of the major legislative requirements, planning documents, and a comprehensive scientific literature review.

The study found that the Bureau of Land Management’s considerations for wild horses and burros is politically driven and reflects a loose interpretation of the legislative requirements and science in favor of livestock interests.

_____________________________, Sponsor
Dudley Burton, Ph.D.

__________________________
Date
ACKNOWLEDGMENTS

This work would not have been possible without the encouragement from my family and friends over the past few years. All of the trips to the Twin Peaks Wild Horse and Burro Herd Management Area have truly been an adventure. Each time I am reminded of how important it is to preserve and protect our public lands by staying actively involved in the management decisions that impact them. It has truly been an eye opener.

Of course none of this would have been possible without the ongoing support from my faculty advisors Dudley Burton, Ph.D. and James W. Reede, Jr., Ed.D. who provided me the opportunity to pursue my master’s degree with the Environmental Studies Department. Thank you.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgments</td>
<td>vi</td>
</tr>
<tr>
<td>List of Tables</td>
<td>ix</td>
</tr>
<tr>
<td>List of Figures</td>
<td>x</td>
</tr>
<tr>
<td>Chapter</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Context</td>
<td>1</td>
</tr>
<tr>
<td>Background</td>
<td>2</td>
</tr>
<tr>
<td>Management</td>
<td>4</td>
</tr>
<tr>
<td>Thesis Statement</td>
<td>9</td>
</tr>
<tr>
<td>2. METHODOLOGY</td>
<td>10</td>
</tr>
<tr>
<td>Case Study</td>
<td>10</td>
</tr>
<tr>
<td>3. LITERATURE REVIEW</td>
<td>11</td>
</tr>
<tr>
<td>Overview</td>
<td>11</td>
</tr>
<tr>
<td>Management: Legislative History</td>
<td>11</td>
</tr>
<tr>
<td>Management: Policy</td>
<td>14</td>
</tr>
<tr>
<td>Biological History: Classification</td>
<td>18</td>
</tr>
<tr>
<td>Ecology: Population Dynamics</td>
<td>19</td>
</tr>
<tr>
<td>Ecology: Interaction</td>
<td>21</td>
</tr>
<tr>
<td>Livestock Grazing: Costs</td>
<td>22</td>
</tr>
<tr>
<td>Livestock Grazing: Impacts</td>
<td>23</td>
</tr>
<tr>
<td>4. CASE STUDY ANALYSIS</td>
<td>25</td>
</tr>
<tr>
<td>Twin Peaks Wild Horse and Burro Herd Management Area</td>
<td>25</td>
</tr>
<tr>
<td>Wild Horses and Burros</td>
<td>27</td>
</tr>
<tr>
<td>Livestock Grazing</td>
<td>30</td>
</tr>
<tr>
<td>Hunting</td>
<td>34</td>
</tr>
<tr>
<td>Planning</td>
<td>34</td>
</tr>
</tbody>
</table>
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Tables</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Table 1 Wild Horse and Burro Populations</td>
<td>9</td>
</tr>
<tr>
<td>2. Table 2 Major Legislation Governing BLM’s Wild Horse and Burro Program</td>
<td>13</td>
</tr>
<tr>
<td>3. Table 3 Wild Horse and Burro Taxonomy</td>
<td>18</td>
</tr>
<tr>
<td>4. Table 4 Twin Peaks Wild Horse and Burro Home Range Populations and Forage Allocations</td>
<td>30</td>
</tr>
<tr>
<td>5. Table 5 Twin Peaks Permitted Livestock Numbers and Forage Allocations</td>
<td>31</td>
</tr>
<tr>
<td>6. Table 6 Twin Peaks Forage Allocations</td>
<td>41</td>
</tr>
<tr>
<td>7. Table 7 Twin Peaks Foaling Rates</td>
<td>47</td>
</tr>
<tr>
<td>8. Table 8 Twin Peaks Wild Horse and Burro Home Range Populations</td>
<td>52</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figures</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Figure 1 BLM Wild Horse and Burro Populations 1981-2011</td>
<td>3</td>
</tr>
<tr>
<td>2. Figure 2 BLM Wild Horse and Burro Herd Management Areas 1971-2011</td>
<td>4</td>
</tr>
<tr>
<td>3. Figure 3 Wild Horse and Burro Herd Management Areas</td>
<td>6</td>
</tr>
<tr>
<td>4. Figure 4 Twin Peaks wild horses in the Eagle Lake Field Office’s Litchfield Holding Facility</td>
<td>8</td>
</tr>
<tr>
<td>5. Figure 5 Fossil Horses: Evidence for Evolution</td>
<td>17</td>
</tr>
<tr>
<td>6. Figure 6 BLM California Herd Management Areas</td>
<td>25</td>
</tr>
<tr>
<td>7. Figure 7 Observation Peak in the Twin Peaks Herd Management Area</td>
<td>27</td>
</tr>
<tr>
<td>8. Figure 8 Twin Peaks Herd Management Area Wild Horses in Observation North Home Range</td>
<td>28</td>
</tr>
<tr>
<td>9. Figure 9 Twin Peaks Herd Management Area Wild Burros in Skedaddle Home Range</td>
<td>28</td>
</tr>
<tr>
<td>10. Figure 10 Twin Peaks Herd Management Area private land or “base property” near Observation Peak</td>
<td>32</td>
</tr>
<tr>
<td>11. Figure 11 Twin Peaks Herd Management Area sheep near Shinn Ranch Road</td>
<td>33</td>
</tr>
<tr>
<td>12. Figure 12 Twin Peaks Herd Management Area cattle near South Observation Home Range. Photo by Kathleen Gregg</td>
<td>33</td>
</tr>
<tr>
<td>13. Figure 13 Twin Peaks Herd Management Area “Big Spring” partially fenced riparian area near Observation Peak</td>
<td>40</td>
</tr>
<tr>
<td>14. Figure 14 Twin Peaks Herd Management Area fencing near Rye Patch Road</td>
<td>42</td>
</tr>
<tr>
<td>15. Figure 15 Twin Peaks Herd Management Area cattle guard on Rye Patch Road</td>
<td>43</td>
</tr>
<tr>
<td>16. Figure 16 Twin Peaks Herd Management Area map showing the five home ranges</td>
<td>44</td>
</tr>
<tr>
<td>17. Figure 17 Twin Peaks Herd Management Area map showing the nine grazing allotments and major pastures boundaries</td>
<td>45</td>
</tr>
<tr>
<td>18. Figure 18 Twin Peaks Herd Management Area wild horse and burro removal operation</td>
<td>48</td>
</tr>
</tbody>
</table>
Chapter 1

INTRODUCTION

Context

Wild free-roaming horses and burros are again disappearing from public lands. Significant controversy surrounds the government’s management and interpretation of the legislation designed to protect them. Conflicts stem from a variety of competing interests for private use of public resources; livestock grazing, mining for minerals, oil and gas extraction, renewable energy projects, and game hunting. Increasing demands on public resources have created significant controversy and competition leading to politically driven policies.
Background

Wild horses and burros are protected by federal law as a national heritage species. Due to concerns that wild horses and burros were “disappearing” from public lands, Congress unanimously passed the Wild Free-Roaming Horse and Burro Act (WFRHBA, 1971). The Act declared:

“Congress finds and declares that wild free-roaming horses and burros are living symbols of the historic and pioneer spirit of the West; that they contribute to the diversity of life forms within the Nation and enrich the lives of the American people; and that these horses and burros are fast disappearing from the American scene. 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.”

The Act designates specific legal protections and management considerations for wild horses and burros living on public lands. The Act set aside public land in areas where wild horses and burros resided at the time the legislation was passed to be “devoted principally, but not necessarily exclusively to their welfare” (WFRHBA, 1971).

However, since 1971 almost half of the land originally allocated for their welfare is no longer managed for or occupied by wild horses and burros due to shifting land use decisions made by federal resource management agencies. These land use decisions have increased competition between public and private stakeholders resulting in declining wild
horse and burro populations. A program-wide analysis of the Bureau of Land Management’s (BLM) Wild Horse and Burro Program shows a trend toward smaller wild horse and burro populations with fewer land resources for wild horses and burros. See figures 1 and 2 below (BLM Data, 2011).

Figure 1 BLM Wild Horse and Burro Populations 1981-2011. Chart above shows the 26% average decrease in populations over the past 30 years. Data source BLM Wild Horse and Burro Program Data 2011.
Figure 2 BLM Wild Horse and Burro Herd Management Areas 1971-2011. Chart shows a 41% decrease in wild horse and burro herd management acreage since 1971. 1972-2004 data was not available. Data source BLM Wild Horse and Burro Program Data 2011.

Management

Wild horses and burros are managed by the federal government on public lands in ten of the Western United States: Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, and Wyoming. Wild horses and burros are managed primarily by the Department of the Interior; the Bureau of Land Management (BLM), in coordination with the Department of Agriculture; and the United States Forest Service (USFS). The BLM is responsible for the majority or 96% of the public lands managed for wild horses and burros, and approximately 4% is managed by the USFS (USFS, 2011; BLM Data, 2011). Since the BLM is the primary managing agency, this paper will discuss the Wild Horse and Burro Program management considerations by the BLM.
After the passage of the 1971 Wild Free-Roaming Horses and Burros Act the BLM designated 54 million acres as designated Herd Areas where wild horses and burros lived on the public lands they managed (BLM Data, 2011). Of these, only 22 million acres of the original Wild Horse and Burro Herd Areas are still occupied and managed by the BLM for wild horses and burros (BLM Data, 2011). The other 32 million acres are no longer managed for wild horses and burros and have been determined by the BLM to be unsuitable for management of wild horses and burros due to issues related to private water rights on lands intermingled on public lands, conflict with other resource values, multiple land ownership transfers, and or unsuitable habitat (BLM MYTHS, 2011).

Currently, there are 179 Herd Management Areas remaining within the ten western states listed earlier. The remaining Herd Management Areas are managed by 44 different BLM Field Offices (GAO, 2008). The wild horse and burro Herd Management Areas are part of the Resource Management Plans developed by each BLM field office. These plans are the guiding management policies adopted to manage the local public resources within their jurisdiction including wild horses and burros.

Burros are provided equal protection under the Wild Free-Roaming Horse and Burro Act (WFRHBA, 1971). However, burros are found in only 39 of the 179 Herd Management Areas and their total population represents less than 12% of the total combined wild horse and burro populations (BLM Data, 2011).
Herd Management Areas are divided by geographical and man-made barriers (i.e. fences), resulting in isolated populations of wild horses and burros subject to independent management considerations made by the local BLM Field Office. See figure 3 below.

![Figure 3 Wild Horse and Burro Herd Management Areas. Map retrieved from the National BLM Wild Horse and Burro Program Statistics page.](http://www.wildhorseandburro.blm.gov/statistics/hmas/Western_US_HMA.pdf)

The BLM does not manage wild horses and burros as a native wildlife species. The BLM primarily removes wild horses and burros to manage their populations (GAO, 2008). The BLM Field Offices are required under the Federal Land Policy Management Act to maintain a current inventory of wild horses and burros on the lands they manage. Most offices use a direct count method that attempts to count every individual animal and does not provide a statistical population range frequently resulting in inaccurate population estimates (GAO, 2008). If the inventory shows that the wild horse and burro
population is over the Appropriate Management Level set by the field office then the local office prepares an Environmental Assessment to assess range conditions to determine if it is necessary to remove excess animals.

When wild horses and burros are removed from public lands they are placed in short-term government holding facilities that are open to the public. The cost to manage a horse in a short-term facility was approximately $5.08 per day in 2008 (GAO, 2008). The wild horses and burros 10 years old or younger are offered for adoption for $125. Horses and burros over the age of 10 are offered for sale for an average price of $15 dollars (GAO, 2008). Both options afford only minor limitations aimed at reducing the risk that the animals would be sold for profit to slaughter (GAO, 2008). The major difference in the options is that the BLM holds the title for adopted animals for one year and the titles for sold animals is provided immediately (GAO, 2008). See figure 4 below.
Figure 4 Twin Peaks wild horses in the Eagle Lake Field Office’s Litchfield Holding Facility. Photo by Catherine Scott.

The remaining horses that are not adopted or sold are segregated and sent to sex-segregated long-term holding facilities in the Mid-West (GAO, 2008). Long-term holding facilities are managed by private contractors and are not open to the public at any time (BLM Contract, 2011). The cost to manage a horse in a long-term facility was $1.27 per day in 2008 for the remainder of their lifetime (GAO, 2008).

Currently, there are more wild horses in government holding facilities than on public lands (BLM Numbers, 2011). The Government Accountability Office reported that in 2007 the BLM spent 67% of the Wild Horse and Burro Program budget on off-
range management at government funded holding facilities, leaving only a small portion of the budget for on-range management considerations (GAO, 2008). See table 1 below.

Table 1 Wild Horse and Burro Populations (BLM Data, 2011).

<table>
<thead>
<tr>
<th></th>
<th>Horses</th>
<th>Burros</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Public Land</td>
<td>33,014</td>
<td>5,483</td>
<td>38,497</td>
</tr>
<tr>
<td>Short Term Holding</td>
<td>11,233</td>
<td>629</td>
<td>11,682</td>
</tr>
<tr>
<td>Long-Term Holding</td>
<td>30,012</td>
<td>0*</td>
<td>30,012</td>
</tr>
</tbody>
</table>

*Burros are not managed in long-term holding facilities.

**Thesis Statement**

The BLM’s Wild Horse and Burro Program is politically driven. If it is not, the null hypothesis would find the management considerations consistent with the legislative requirements, utilize available science and principles, distribute resources equitably, and support sustainable wild horse and burro populations. This paper will review a case in Northern California to determine the implications for wild horses and burros.
Chapter 2
METHODOLOGY

Case Study

To test if the BLM ‘s Wild Horse and Burro Program is politically driven a case study approach was used to evaluate the management considerations. The programs policies were compared for legislative consistency, application of scientific research and principles, distribution of resources, and the sustainability of wild horse and burro populations.

The case study followed California’s BLM Eagle Lake Field Office’s planning processes and subsequent removal of wild horses and burros from the Twin Peaks Herd Management Area in 2010. The research approach included the following:

- Field Observations
- Review BLM Documents
- Review Scientific Literature
- Review Legislative Requirements
- Review Population Data
- Attend Court Hearings
- Communication with the California BLM State Resources Office
- Communication with California BLM Eagle Lake Field Office
Chapter 3
LITERATURE REVIEW

Overview

Wild free-roaming horses and burros are studied extensively in the United States. Their management by the BLM is controversial, and generally centers around conflicts from private interest in public resources. Most available literature comes from scientific professionals and government publications. Often the interpretation of the scientific data is biased to support private special interest groups resulting in continued conflicts between key stakeholders.

This literature review will provide a baseline for the case study. The research was divided into four main categories to provide a framework for understanding the issues associated with wild horse and burro management.

- Management: Legislation and Policy
- Biological History: Origin and Classification
- Ecology: Population Dynamics and Interaction
- Livestock Grazing: Costs and Impacts

Management: Legislative History

In the early 1500’s, during the voyages of Columbus, the Equus species returned to their native land in North America. Spanish conquistadors brought horses with them to the New World (Stillman, 2008). Some of these horses escaped and regained their
place in the natural environment. Others were domesticated and were used for hunting, warfare, and agricultural purposes. Populations of the wild horses expanded and by the late 1800’s it is estimated that there were over one million wild horses and burros roaming free in North America (Stillman, 2008).

By the 1920's, as human populations increased, wild horse and burro populations saw a sharp population decline as many were shot, poisoned, domesticated, or slaughtered. Mustangers or horse wranglers rounded up large numbers of wild horses and sold them for profit to slaughter. At that time, wild horses and burros had no legal protection. Many suffered from inhumane treatment as they were killed for profit, sold to slaughter for both human and pet consumption and other commercial purposes (Stillman, 2008).

By 1959 it was estimated that only 25,000 wild horses remained on public lands. Public concern and the determination of Velma Johnston a native of Nevada, also known as Wild Horse Annie, led the passage of the first bill to protect wild horses and burros. The bill prohibited the use of motorized vehicles to hunt wild horses and burros on public lands. This bill was later known as the Wild Horse Annie Act and was signed into law on September 8th, 1959. This bill would pave the way for more significant legislative protections under the Wild Free-Roaming Horses and Burros Act that was unanimously passed by Congress on December 15th, 1971 (WFRHBA, 1971). See table 2 below for the history of major legislation.
Table 2 Major Legislation Governing BLM’s Wild Horse and Burro Program (GAO, 2008)

<table>
<thead>
<tr>
<th>Legislation</th>
<th>Date</th>
<th>Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Law 86-234 Wild Horse Annie Act of 1959</td>
<td>Sept. 8, 1959</td>
<td>Established policies for restricting aircraft or motor vehicles to hunt wild horses or burros on public lands. Restricted any unauthorized capture, killing, or harassment of wild horse or burros.</td>
</tr>
<tr>
<td>Public Law 92-195 Wild Free-Roaming Horses and Burros Act of 1971 (Act)</td>
<td>Dec. 15, 1971</td>
<td>Directs the managing agencies (BLM and USFS) to protect and manage wild horses and burros as an integral part of natural systems. Authorizes the minimal feasible levels of management and the removal of wild horses and burros in the most humane manner possible when needed to preserve and maintain a thriving natural ecological balance on public lands. The Act also establishes criminal penalties for criminal offenses involving wild horses and burros. The Act specifies that wild horses shall be “protected from capture, branding, harassment, or death”.</td>
</tr>
<tr>
<td>Federal Land Policy and Management Act (FLPMA) of 1976</td>
<td>Oct. 21, 1976</td>
<td>Directs the managing agencies (BLM and USFS) to maintain an inventory of public lands and their resources, and with public involvement, to develop, maintain, and revise land use plans that reflect multiple use principles on public lands.</td>
</tr>
<tr>
<td>Public Rangelands Improvement Act of 1978</td>
<td>Oct. 25, 1978</td>
<td>Directs the managing agencies (BLM and USFS) to maintain a current inventory of wild horses and burros on public lands. If overpopulation exists and it is necessary to remove excess wild horses and burros, the agency</td>
</tr>
</tbody>
</table>
must first remove and destroy old, sick, and lame animals in the most humane manner possible; then humanely capture and remove wild horses and burros for private maintenance and care for which an adoption demand exists. Also, 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.

Department of the Interior and Related Agencies Appropriations Act, 2005 (Burns Amendment)  Dec. 8, 2004  Directs the sale of wild horses and burros “without limitation” that are over 10 years of age, or offered for adoption at least three times. Exempts animals sold under this provision from the general prohibition under the 1971 Act of processing the remains of wild horses and burros into commercial products.


Management: Policy

The Government Accountability Office reviewed the BLM’s Wild Horse and Burro Program in 1990 and again in 2008. In 1990, the Government Accountability
Office found that the removal of wild horses and burros was based on inadequate information that did not quantify range deterioration resulting from wild horses and burros. The Government Accountability Office report found that the BLM’s decisions to remove wild horses and burros were not based on evidence that the populations were exceeding rangeland resources (GAO, 1990). In addition, the BLM was unable to verify that removing wild horses and burros resulted in any improvement in range conditions (GAO, 1990). The Government Accountability Office noted that livestock grazing remained constant or even increased after removing wild horses and burros from Herd Management Areas (GAO, 1990).

In 2008, the Government Accountability Office again reviewed the BLM’s Wild Horse and Burro Program and the associated management policies. It was determined by the Government Accountability Office that the BLM had set Appropriate Management Levels, but the BLM was unable to provide a policy as to how the Appropriate Management Levels were determined (GAO, 2008). The Government Accountability Office also raised concerns regarding the BLM’s methodology for counting wild horses and burros. Most BLM Field Offices reported using a direct count method that attempts to count every individual animal but fails to provide a statistical population range and frequently result in inaccurate population estimates (GAO, 2008). Finally, the Government Accountability Office addressed concerns regarding policies leading to increasing numbers and costs of wild horses and burros in government holding facilities.
The National Academy of Sciences also reviewed the BLM Wild Horse and Burro Program in 1982 and again in 1991. In 1982, the National Academy of Sciences was primarily concerned with BLM’s overestimation of population rates of increase. The National Academy of Sciences also addressed the potential for wild horse and burro populations to be self-sustaining through limitations due to naturally occurring density dependent factors like food, water, shelter, predators, or climatic conditions. The BLM resisted considering the potential of density dependence despite evidence that several wild horse and burro populations demonstrated characteristics of self-regulation without interference by the BLM (NAS, 1982).

In 1991 the National Academy of Sciences study primarily dealt with genetics and the potential use of fertility controls for wild horse populations. The National Academy of Sciences studies evaluated fertility control options and stated concerns regarding the implementation of fertility programs based on the limitations of research, methods, and associated risks of fertility controls for wild horses (NAS, 1982).

**Biological History: Origin**

The Equus genus originated on the North American continent. Distant ancestors of the horses and burros from the Equidae family appear in the archeological record in North America around 55 million years ago (MacFadden, 2005). Over time their descendants evolved and adapted to the changing climate and geographic conditions (Stebbins, 1981). Approximately 4 million years ago, during the Pliocene epoch, the
climate became cooler and drier and North America experienced a vegetative shift from mostly woodlands to grasslands and savannahs, a change that was reflected in the co-evolution between equids and their food sources (Stebbins, 1981). See figure 5 below.

Equus is the single genus of all modern equines and first appears in the fossil record around 4 million years ago. Approximately 1.7 million years ago Equus caballus, also known as the modern horse, appeared for the first time in the fossil record in North America (Forsten, 1992). Various species of Equus migrated north across the land
bridges into Africa, Asia, Europe, and South America, while others species remained in North America until the ice ages and continental glaciations of the late Pleistocene epoch. As the ice sheets advanced over North America, Equus populations began to decline until they seem to have disappeared from the fossil record altogether approximately 10,000 years ago (MacFadden, 2005). See table 3 below.

Table 3 Wild Horse and Burro Taxonomy.

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Phylum</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
<th>Genus</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animalia</td>
<td>Chordata</td>
<td>Mammalia</td>
<td>Perissodactyla</td>
<td>Equidai</td>
<td>Equus</td>
<td>Equus caballus (horse) Equus asinus (burro)</td>
</tr>
</tbody>
</table>

*Biological History: Classification*

The science is conclusive that horses originated in North America. However, controversy surrounds their classification as a native species. Opponents argue that since the wild horses were absent from the Americas and then were re-introduced after a period of domestication, they are not a native species. This concept is inconsistent with modern molecular biology and theory. Mitochondrial DNA analysis has proven that Equus
*caballus* is genetically equivalent to the horses found in the North American fossil record (Forsten. 1992). Wild horses meet criteria as a native species by both origin and co-evolution with the habitat in North America, so a period of domestication is “biologically irrelevant” (Kirkpatrick, Fazio, 2008).

Wild horses and burros are classified by the BLM as a National Heritage Species. This classification places them in a specialized category as neither wild nor domestic, which subjects them to management considerations that are inconsistent with conventional wildlife practices and legal protections, such as the Endangered Species Act (Kirkpatrick, Fazio, 2008). In maintaining this classification, the federal management agencies fail to interpret and apply modern scientific information, which could significantly change the scope of management considerations (Kirkpatrick, Fazio, 2008).

*Ecology: Population Dynamics*

Wild horses and burros occupy established Herd Management Areas on public lands that are geographically and or physically separated by fences or other natural barriers. This results in isolated populations with varied rates of reproduction and survival due to changing climate, forage, competition, disturbance and environmental conditions (Garrott, Taylor, 1990) (NAS, 1982). Population growth is represented as an average growth rate which reflects both reproductive and survival rates (Garrott, Taylor, 1990). Research has indicated that wild horse population growth rates can range between 15% to 27%, averaging 21%, using aerial population survey data (Garrott, Siniff,
Eberhardt, 1991) (Eberhardt, Majorowicz, Wilcox, 1982). Other studies using a combination of aerial, observational, and or capture data have reported average annual population growth rates of 19% or less (Garrott, Taylor, 1990) (Berger, 1986) (Wolfe, 1980). Several studied populations have indicated density dependent responses in population growth rates (Garrott, Taylor, 1990) (Berger, 1986). Very little research is available on burro population growth rates, but is estimated to have lower rates of population growth at 11% to 15% annually (BLM EA, 2006).

Ecosystems are in a state of constant change. Wild horses and burros have been subject to the changing environmental conditions over the last 350-450 years (Beever, 2003). They have had to adapt to continuous changes in climate, forage, habitat, predators, and demographics (Beever, 2003). Most of the wild horse and burro populations managed by the BLM are disturbed by periodic removals to manage their populations at or below population levels, which would subject them to natural population limitations due to density dependent factors (i.e. food, water, shelter, predators, climatic conditions) (Beever, 2003) (Garrott, Siniff, Eberhardt, 1991). Availability of food, water, and suitable habitat can resolve over-population as resources become scarce due to overcrowding, or as disease, or predation provide natural controls of wild populations (Ricklefs, 2001).


Ecology: Interaction

Wild horses and burros contribute to the biological diversity on public lands. They are unique in possessing less efficient post-gastric digestive systems that contribute to higher material passage rates (Feldhamer, Thompson, Chapman, 2003). Horses also tend to utilize more abundant, but poorer nutritional quality plant species (Feldhamer, Thompson, Chapman, 2003). Horse droppings pass most seeds intact, which facilitates seed dispersal, and cycles nutrient rich material that builds soil moisture retention resulting in an increase in native plant diversity near horse trails (Downer, 2007) (Ostermann-Kelm, Atwill, Rubin, Hendrickson, Boyce, 2009).

Competition between wild horses and burros and other native or domestic species has not been substantiated (Feldhamer, Thompson, Chapman, 2003). Wild horses utilize a broader range of plant species in their diet and are one of the least-selective grazers in the western states (Beever, 2003). Approximately 80% of their diet is composed of shrub and grasslands with less than 1% comprised of riparian vegetation (Berger, 1986). Burros tend to have a broader diet, which includes approximately 50% of browse species such as trees, shrubs and vines with the rest was comprised of grasslands (Feldhamer, Thompson, Chapman, 2003).

Wild horses and burros use the land and resources at different intensities throughout the year, allowing for a natural rest and rotation of foraging pressures (Downer, 2007). Also, wild horses and burros tend to use relatively few trails to travel to and from grazing, resting and water sources minimizing trampling and riparian damage.
near waterways (Beever, 2003) (Ganskopp, Vavra, 1986). These adaptations minimize impacts to their environment and illustrate sustainable integration within the ecosystem.

A recent study compared BLM managed land sites that were horse-occupied and horse-removed. The study found that the number of plant species and plant cover was greater in non-horse-occupied sites and stated that wild horses “may alter vegetation in semi-arid ecosystems” due to soil compaction, selective plant consumption and trampling (Beever, Tausch, Thogmartin, 2008).

*Livestock Grazing: Costs*

In 2011, the cost to graze livestock on BLM managed land is $1.35 for one cow and calf, one horse, five sheep or five goats for one month (BLM Grazing, 2011). In 2004, federal agencies spent $144 million dollars to administer private livestock grazing programs, but only collected $21 million in fees, failing to recoup the costs to administer the livestock grazing program (GAO, 2005). In addition, over $5 million dollars was spent by federal agencies to eliminate the public’s native wildlife predators; including bears, bobcats, coyotes, foxes, and mountain lions, from public lands in order to protect private livestock grazing on public lands (GAO, 2005). In 2010, 4,739 of these native predators were killed by the federal government in California alone (USDA, 2011).

Other costs related to livestock grazing on public lands involve escrow-waivers. Escrow waivers allow grazing allotment permitees to use federally issued grazing permits as private loan collateral (Wuerthner, Matteson, 2002). In 2006, over $1.1 billion dollars
in loans were levied against BLM grazing permits (Jones, Salvo, 2006). The implications of this practice of mortgaging public resources needs further investigation.

*Livestock Grazing: Impacts*

The BLM permits livestock grazing on 94% of the public lands it manages in the western states (Fleischner, 1994). It is estimated that livestock grazing has negatively impacted at least 80% of riparian ecosystems in the western states (U.S. Department of the Interior, 1994a, as cited in Belsky, Matzke, Uselman, 1999). Studies have found that livestock tend to congregate in riparian areas, which negatively impacts the biodiversity and biophysical functioning of these ecosystems (Fleischner, 1994) (Marlow, Pogacnik, 1986).

Livestock grazing has at least the following major impacts:

- **Elimination of Native Predators** (Donahue, 1999) (Wuerthner, Matteson, 2002) (GAO, 2005)

• **Soil Compaction and Accelerated Erosion** (Fleischner, 1994) (Belsky, Matzke, Uselman, 1999) (Donahue, 1999) (Wuerthner, Matteson, 2002)

• **Hydrologic Disruption and Contamination** (Fleischner, 1994) (Belsky, Matzke, Uselman, 1999) (Wuerthner, Matteson, 2002)


   The negative impacts of livestock grazing are well documented. Most scientists have recommended the removal of livestock from public lands in order to improve the ecological conditions and protect public resources (Fleischner, 1994) (Donahue, 1999) (Belsky, Matzke, Uselman, 1999) (Wuerthner, Matteson, 2002).
Chapter 4
CASE STUDY ANALYSIS

Twin Peaks Wild Horse and Burro Herd Management Area

Twin Peaks is the largest wild horse and burro Herd Management Area in California. It is managed by the California BLM Eagle Lake Field Office located in Susanville California, which is part of the Northern California BLM District Office under the direction of the California BLM State Office. See figure 6 below for map of study location.

The Twin Peaks Herd Management Area is located in North-eastern California covering the California-Nevada border in both Lassen and Washoe Counties. Twin Peaks covers 789,852 acres of mostly public and some private land (BLM EA, 2010). The Herd Management Area is approximately 35 miles wide and 55 miles long and is bordered by Highway 395 on the west, Honey Lake on the south, and the Smoke Creek Desert on the east. In addition to wild horses and burros, Twin Peaks includes seven Wilderness Study Areas, provides habitat for populations of the greater sage-grouse (*Centrocercus urophasianus*) and the pygmy rabbit (*Brachylagus idahoensis*), which are both candidate species for protection under the Endangered Species Act. It is also provides habitat to pronghorn antelope, and East Lassen Mule Deer herds along with a variety of other wildlife species (BLM EA pg. 6, 70, and 112, 2010).

The average elevation in Twin Peaks is between 5,200 and 5,600 feet and receives an average of 12 inches of precipitation per year (BLM EA, 2010). The topography is divided by several drainage basins with volcanic rock outcroppings and rims encompassing wide valleys as well as four dominant mountains including: Skedaddle Mountain, Shinn Mountain, Twin Peaks, and Observation Peak. The vegetation resembles most Great Basin plant communities and is dominated by a variety of sagebrush and perennial grass species with some juniper woodlands scattered in the northern regions of the Herd Management Area. See figure 7 below.
Land Use

The Twin Peaks Herd Management Area is primarily managed for livestock grazing, general and off-road recreation, and seasonal hunting activities. The BLM is responsible for the management of the grazing allotments and permits, and works in coordination with the California Department of Fish and Game regarding hunting, which issues and manages hunting permits.

Wild Horses and Burros

Wild horses live in multi-generational family bands that consist of females and their offspring and a single stallion or dominant male (Berger, 1986). The offspring tend to leave their family bands when they reach sexual maturity (Berger, 1986). There is very little research on wild burro behavior, but research indicates that wild burros live in similar multi-generational family bands (McKnight, 1958). See figures 8 and 9 below.
Figure 8 Twin Peaks Herd Management Area Wild Horses in Observation North Home Range

Figure 9 Twin Peaks Herd Management Area Wild Burros in Skedaddle Home Range. Photo by Kathleen Gregg.
The Appropriate Management Level is defined as the “optimum number of wild horses which results in a thriving natural ecological balance and avoids deterioration of the range” (GAO, 2008). The BLM Eagle Lake Field Office has designated the Appropriate Management Level in the Twin Peaks Herd Management Area as a population between 448-758 wild horses and 72-116 wild burros. The Appropriate Management Level is an administrative tool to establish population levels to minimize range degradation and is subject to re-evaluation by the Field Office as needed (BLM RMP, pg. 136, 2008). The BLM Eagle Lake Field Office further subdivides and manages the population as five separate home ranges within the Twin Peaks Herd Management Area (BLM EA pg. 12, 2010). See table 4 below.
Table 4 Twin Peaks Wild Horse and Burro Home Range Populations and Forage Allocations BLM EA pg. 10-12, 2010).

<table>
<thead>
<tr>
<th>Home Range</th>
<th>Appropriate Management Level</th>
<th>Forage Allocations Animal Unit Months (AUM*)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Horses</td>
<td>Burros</td>
</tr>
<tr>
<td>Twin Peaks North</td>
<td>155-288</td>
<td>22-42</td>
</tr>
<tr>
<td>Skedaddle</td>
<td>58-108</td>
<td>10-15</td>
</tr>
<tr>
<td>Dry Valley Rim</td>
<td>39-72</td>
<td>15-22</td>
</tr>
<tr>
<td>Observation North</td>
<td>150-216</td>
<td>5-8</td>
</tr>
<tr>
<td>Observation South</td>
<td>46-74</td>
<td>20-29</td>
</tr>
<tr>
<td>Total</td>
<td>448-758</td>
<td>72-116</td>
</tr>
</tbody>
</table>

Horse AUMs* are calculated using one mature horse (with foal) as one animal unit equivalent, for a 12 month grazing period. Burro AUMs* are calculated using one mature burro (with foal) as 0.5 animal unit equivalent, for a 12 month grazing period.

Livestock Grazing

In California, the BLM permits livestock grazing on 8.5 million acres of public lands (BLM Grazing, 2011). There are nine separate livestock grazing allotments located within the Twin Peaks Herd Management Area. The allotments are based on fence lines or natural boundaries that restrict livestock movement (BLM EA pg.44, 2010). Each
allotment is assessed and permitted for forage allocations or Animal Unit Months for livestock use. See table 5 below.

Table 5 Twin Peaks Permitted Livestock Numbers and Forage Allocations (BLM EA pg. 46-47, 2010).

<table>
<thead>
<tr>
<th>Permitted Livestock</th>
<th># Animals</th>
<th>Forage Allocations Animal Unit Months (AUM*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>3,730</td>
<td>22,481</td>
</tr>
<tr>
<td>Sheep</td>
<td>10,000</td>
<td>4,697</td>
</tr>
<tr>
<td>Total</td>
<td>13,730</td>
<td>27,178</td>
</tr>
</tbody>
</table>

Animal Unit Month* (AUM) is defined as the amount of forage necessary for one month.

Most grazing allotments in the Twin Peaks Herd Management Area incorporate small parcels of private lands adjacent to the allotment that control the water resources (BLM EA pg.44, 2010). Ownership of the adjacent land is known as a base-property, which provides preference to the land owner for the bordering livestock allotment (BLM Grazing, 2011). This policy gives preference to private interests which influences public land management. See figure 10 below.
Permitted livestock grazing is a predominant use in the Twin Peaks Wild Horse and Burro Herd Management Area. Cattle and sheep are the primarily permitted livestock. See figures 11 and 12 below.
Figure 11 Twin Peaks Herd Management Area sheep near Shinn Ranch Road. Photo by Catherine Scott

Figure 12 Twin Peaks Herd Management Area cattle near South Observation Home Range. Photo by Kathleen Gregg.
**Hunting**

Hunting occurs throughout the Twin Peaks Herd Management Area. The 2010 wild horse and burro removal operation was scheduled around hunting season despite the known risks to the wild horses and burros due to heat stress and the late foaling season (BLM EA, pg. 28). All wildlife and hunting permits are managed by the California Department of Fish and Game on the California side, and the Nevada Department of Fish and Wildlife for the portion of the Twin Peaks Herd Management Area that resides on the Nevada side. There are several pieces of privately owned property which operate private game hunting reserves within the Twin Peaks Herd Management Area boundaries, but information was not provided by the BLM Eagle Lake Field Office after repeated requests regarding the extent, magnitude and degree of management of hunting activities.

**Planning**

In order to remove wild horses and burros the BLM is required to follow the federal National Environmental Policy Act planning process. This process, which includes public involvement, is required for all environmental actions on public lands. The BLM prepares a scoping notice that is sent to interested public parties notifying them of the proposed plan to remove wild horses and burros. After public input the BLM develops an Environmental Assessment to provide background information regarding the purpose, necessity and analyzes alternatives to removing wild horses and burros (BLM NEPA, 2008).
The purpose of the Environmental Assessment is to determine if the action will
“significantly affect the quality of the human environment” (BLM NEPA, 2008). If the
Environmental Assessment determines that the action will result in a significant impact,
the agency is required to prepare a comprehensive review known as an Environmental
Impact Statement. If the Environmental Assessment determines there are no impacts the
agency issues a Finding of No Significant Impact, which requires that they take a hard
look at the evidence (BLM NEPA, 2008). To date the BLM has not prepared an
Environmental Impact Statement to justify its removal wild horses and burros from any
of the Herd Management Areas, despite significant controversy and public opposition.

Process

On February 5th 2010, the BLM Eagle Lake Field Office sent out approximately
250 letters to a list of interested public parties to notify them that the office was
proposing to remove wild horses and burros from the Twin Peaks Herd Management
Area (BLM EA pg. 16, 2010). In response, the office received over 2,300 letters,
comments, and emails from individuals and groups in opposition to the proposal and
requesting that the BLM not remove wild horses and burros, re-evaluate Appropriate
Management Levels, remove livestock, and mange wild horses and burros on the range
(BLM EA pg. 17, 2010). The BLM received 15 letters from groups or individuals that
supported the removal (BLM EA pg. 17, 2010).
On May 20th 2010, the BLM Eagle Lake Field Office posted the Environmental Assessment Twin Peaks Herd Management Area Wild Horse and Burro Gather Plan for a 30-day public review and comment period. The proposal would remove the entire population (estimated at 2,300 horses and 280 burros) and permanently remove 1,855 wild horses and 210 burros. The BLM planned to apply fertility control vaccines, skew the sex-ratios 60/40 male to female while returning 450 wild horses and 72 burros to the range (BLM EA pg. 8, 2010).

In response to the Environmental Assessment, the office received 2,270 comments regarding the proposed removal (BLM NOD, 2010). Again the office received 2,255 comments in opposition of the plan to remove wild horses and burros primarily from preservation groups, scientists, and individuals (BLM NOD pgs. 10-43, 2010). Approximately 15 comments were in support of removing wild horses and burros and were primarily from livestock and game hunting interest groups (BLM NOD pgs. 10-43, 2010).

**Law Suits**

On July 15th 2010, a legal complaint was filed against the BLM Eagle Lake Field Office’s decision to remove wild horses and burros from the Twin Peaks Herd Management Area. The suit was filed on behalf of In Defense of Animals, DreamCatcher Wild Horse and Burro Sanctuary; Barbara Clarke; Chad Hanson; and Linda Hay. The complaint included a temporary restraining order and preliminary injunction of the
proposed action claiming violations of the Wild Free-Roaming Wild Horses and Burros Act, National Environmental Policy Act, and the Administrative Procedure Act (IDA v. DOI, 2010). In addition, the complaint states that the Twin Peaks Herd Management Area Wild Horse and Burro Gather Plan was inadequate, utilized outdated range studies, failed to fully consider alternatives, and that the Finding of No Significant Impact is faulty, therefore requiring a full Environmental Impact Statement due to the precedence and significance of the proposed action (IDA v. DOI, 2010).

On August 5th 2010, the emergency stay was denied allowing the roundup to proceed on August 9th, 2010. The court would hear the complete arguments of the case at a later date. Although the stay was not provided by the court, the court stated “Plaintiffs’ motion raises serious legal questions concerning whether the large-scale removal of horses conflicts with the Wild Horses Act and whether an Environmental Impact Statement is required before any action can be implemented” (IDA v. DOI, 2011). This case is still under litigation and is scheduled again for a hearing in February of 2012. If the court decision favors the plaintiffs the BLM could be required to return the previously captured wild horses and burros to the Twin Peaks Herd Management Area.

In addition, the Western Watersheds Project has a pending lawsuit against the BLM Eagle Lake Field Office in response to the Resource Management Plan adopted in 2008. The complaint is consistent with the other suit against this office on grounds that the BLM Eagle Lake Field Office violated the mandates of the National Environmental Policy Act and the Federal Land Policy and Management Act. The complaint states the
BLM Eagle Lake Field Office failed to protect critical habitat for the sage-grouse population on lands they manage. The complaint states that the BLM instead “made long-term management decisions that favor livestock and other industries at the expense of conserving and restoring the increasingly fragmented sagebrush-steppe ecosystem” (WWP v. DOI, 2008). This case is still under litigation. Several other joined complaints have obtained favorable rulings concerning the Western Watershed Project claim that the BLM has failed to adequately protect habitat for endangered species on public lands they manage.

Research

The Eagle Lake Field Office is required to substantiate that an overpopulation or an excess of wild horses and burros must be removed to restore “a thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation” (BLM WFRHBA, 1971). The legislation does not require BLM to maintain specific population numbers or Appropriate Management Levels and the determination to remove wild horses and burros must be based on range studies that demonstrate range degradation resulting from an over-population of wild horses and burros before they can be removed.

A review of the range studies and Riparian Functional Assessments did not substantiate specific impacts or methods used to differentiate impacts related to wild horses and burros compared to those related to livestock. However, the Environmental
Assessment claimed significant percentages of impacts caused by wild horses and burros leading to riparian sites functioning at risk (BLM EA, 2010). A review of the Eagle Lake Field Office’s Riparian Functional Assessments was inconclusive to how they made this determination. The Riparian Functional Assessments only note contributing factors causing poor riparian conditions and does not provide data specific enough to substantiate a percentage of riparian damage being caused by wild horses and burros and not from livestock use (BLM ADMIN, 2010). There was no hard-data, analysis, or stated methods to differentiate that the riparian damage was specifically associated with wild horses and burros compared to livestock. BLM’s conclusions are also inconsistent with other scientific findings that have clearly demonstrated the difference between wild horses and burros and livestock in respect to their relative impacts on riparian areas.

Prior to removing wild horses and burros from the Twin Peaks Herd Management Area the permitted livestock out-numbered wild horses and burros by a 4:1 ratio. Wild horses and burros would only have a small contribution to the riparian damage due to the small ratio of wild horses and burros compared to livestock. See figure 13 below for a riparian area within the Twin Peaks Herd Management Area.
Under the Wild Free-Roaming Horse and Burro Act, Wild Horse and Burro Herd Management Areas are to be managed “principally, but not necessarily exclusively to their welfare” (WFRHBA, 1971). In addition, the Federal Land Policy and Management Act of 1976 requires that “Wild horses and burros shall be considered comparably with other resource values in the formulation of land use plans” (FLPMA, 1976). However, in the Twin Peaks Herd Management Area livestock are permitted to use 82% of the forage allocations; where wild horses and burros are provided less than 18% of the available
forage allocations (BLM EA pg. 10-12, 46-47, 2010). The resource allocations clearly indicate that forage allocations favor livestock. See table 6 below.

Table 6 Twin Peaks Forage Allocations (BLM EA pg. 10-12, 46-47, 2010).

<table>
<thead>
<tr>
<th>Allocation</th>
<th># Animals</th>
<th>Forage Allocations (AUMs)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horses + Burros</td>
<td>520</td>
<td>5,808</td>
<td>18%</td>
</tr>
<tr>
<td>Cattle + Sheep</td>
<td>13,730</td>
<td>27,178</td>
<td>82%</td>
</tr>
<tr>
<td>Total</td>
<td>14,250</td>
<td>32,986</td>
<td>100%</td>
</tr>
</tbody>
</table>

Animal Unit Month* (AUM) is defined as the amount of forage necessary for the sustenance of one cow and calf or five sheep for one month.

The forage allocations and Appropriate Management Levels for wild horses and burros were adopted under the 2008 Eagle Lake Resource Management Plan. The Federal Land Policy and Management Act of 1976 requires the BLM to develop and adopt Resource Management Plans as management guides for public resources under its jurisdiction. These plans are responsible for the implementation legislative requirements. Resource management plans are policies and do not supersede legal requirements. These plans can be amended to accommodate proposals or in response to new or increased interest in a specific use for the land (RMP pg. 3, 2008).

Fencing

There is extensive fencing within the Twin Peaks Herd Management Area. The 1976 Federal Land Management Policy Act requires that “management activities affecting wild horses and burros shall be undertaken with the goal of maintaining free-
roaming behavior.” In 1989, the BLM Eagle Lake Field Office adopted the Twin Peaks Herd Management Area Plan which subdivided Twin Peaks into five sub-herds or home ranges based on livestock allotments and pasture fencing (BLM HMAP pg. 7, 1989). Fencing restricts wild horse and burro movement, natural migration, and access to water and forage resources within the Twin Peaks Herd Management Area. See figures 14 and 15 below for an example of the fencing and cattle guard barriers.

Figure 14 Twin Peaks Herd Management Area fencing near Rye Patch Road
Home Ranges vs. Livestock Allotments

The Twin Peaks wild horse and burro home ranges correlate with livestock allotment boundaries. Livestock allotments are based on fence-lines and natural boundaries to restrict livestock movement and control grazing (BLM EA, pg. 44). The home range boundaries impact free-roaming behavior and restrict gene flow due to the sub-divided populations. The Environmental Assessment denies that the wild horse and burro home ranges are fenced or that grazing allotments correspond with wild horse and
burro home ranges (BLM EA, 2010). See figures 16 and 17 below that demonstrate the livestock allotment and wild horse and burro home range correlation.

Figure 16 Twin Peaks Herd Management Area map showing the five home ranges. Map retrieved from the National BLM Wild Horse and Burro Program Twin Peaks Herd Management Area. Boundaries lines enhanced to show correlation. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/caso/WHB.Par.61242.File.dat/twinpeaks.pdf
Figure 17 Twin Peaks Herd Management Area map showing the nine grazing allotments and major pastures boundaries. Map retrieved from the National BLM Wild Horse and Burro Program Twin Peaks Herd Management Area. Boundaries lines enhanced to show correlation. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/caso/WHB.Par.61242.File.dat/twinpeaks.pdf
Management History

The Wild Free-Roaming Horse and Burro Act requires that “all management activities shall be at the minimal feasible level” (WFRHBA, 1971). The BLM Eagle Lake Field Office has removed wild horses and burros 9 times since 1998 (BLM EA, pg 36, 2010). The BLM Eagle Lake Field Office states that few natural predators exist in the Twin Peaks Herd Management Area (BLM EA pg.34, 2010). The office states that decades of monitoring has shown only a small number of wild horses and burros taken by mountain lions (*Felis concolor*) and other natural predators like black bear (*Ursus americanus*) do not occupy the Twin Peaks Herd Management Area (BLM EA pg.34, 2010). Since predation is not significant in the Twin Peaks Herd Management Area the office primarily controls the population by removing animals and or applying fertility controls.

The absence of natural predators is consistent with predator management programs on public lands. The Government Accountability Office has found that predators are frequently killed by ranchers and federal agencies to protect private livestock interests on public lands (GAO, 2005). However, one study found that where mountain lion hunting was infrequent or suspended that mountain lion (*Felis concolor*) predation naturally controlled the population growth in wild horses (Turner, Morrison, 2001). The absence of natural predators within the Twin Peaks Herd Management Area is most likely a result of protection of private livestock. This perpetuates the artificial management of wild horses and burros in favor of private livestock interests.
Roundup

The wild horse and burro population inventory data for Twin Peaks Herd Management Area is based on aerial direct count surveys and population growth assumptions of 20% for wild horses and 16% for burros (BLM EA, pg. 35, 2010). A subsequent analysis using the population data from the removed wild horses and burros found the average foaling rate for 2009 and 2010 was approximately 16% for wild horses and 14% for burros (BLM FOIA, 2011). This information raises questions regarding the assumptions used to estimate the population growth for both wild horses and burros. See table 7 below.

Table 7 Twin Peaks Foaling Rates (BLM FOIA, 2011).

<table>
<thead>
<tr>
<th>Twin Peaks Foaling Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year</strong></td>
</tr>
<tr>
<td>Horses</td>
</tr>
<tr>
<td>Burros</td>
</tr>
</tbody>
</table>

*Results for 2010 do not account for first year foal survival.

The BLM Eagle Lake Field Office estimated that there were approximately 2,303 wild horses and 282 wild burros in the Twin Peaks Herd Management Area prior to the 2010 roundup (BLM EA, pg. 35, 2010). In 2010, The BLM Eagle Lake Field Office proposed a management plan to remove all of the wild horses and burros from the Twin Peaks Herd Management Area. After removing the animals the field office planned to
select for herd characteristics, apply fertility vaccines, and adjust sex ratios before
returning 450 wild horses and 72 burros to their home ranges (BLM EA, pg.5, 2010).

The BLM Eagle Lake Field Office began removing wild horses on August 11th, 2010. The BLM used private contractors to remove the Twin Peaks wild horses and
burros. The operation spanned over a 6-week period removing 1,637 wild horses and 160
burros concluding on September 19th, 2010. A total of 1,797 animals were removed
from the Twin Peaks Herd Management Area during the removal operation. See figure 18
below.

Figure 18 Twin Peaks Herd Management Area wild horse and burro removal operation August 2010. Photo by Catherine Scott.
The BLM Eagle Lake Field Office reported 15 deaths as a result of the actual removal operation. Subsequent data revealed that another 110 horses and 13 burros died during the following 12 months in government and private holding facilities (FOIA, 2011). Approximately 138 total or 8% of the wild horses and burros died as a result of the removal operation or other causes while in subsequent holding facilities (FOIA, 2011).

Post Removal Population Inventory

The BLM conducted a post-removal aerial population inventory for the Twin Peaks Herd Management Area between September 29th, and October 2nd, 2010. The survey was conducted over a 4-day period using a Direct-Count Method. The post-inventory survey reported that 793 wild horses and 160 burros remained in the Twin Peaks Herd Management Area (BLM SURVEY, 2010).

An independent post-removal aerial population survey estimated far fewer horses and burros remain in the Twin Peaks Herd Management Area. The survey used the Straight-Line Transect method to estimate the relative density and population size applying a statistical analysis. The flight surveyed over 8% of the Twin Peaks Herd Management Area and estimated that only 84-265 wild horses and very few burros remained in the Herd Management Area (Downer, 2010). These results were shared with the BLM’s Eagle Lake Field Office. The office denied the conflicting results.
The conflicting population surveys and subsequent findings of lower than expected foaling rates raise serious concerns regarding how many wild horses and burros are remaining in the Twin Peaks Herd Management Area.

**Release**

The post removal population inventory stated that the remaining population was over the high Appropriate Management Level. However, on April 6th, 2011 the office released 22 animals back to the Twin Peaks Herd Management Area in separate home ranges in order to achieve the targeted sex-ratios in the appropriate home ranges (BLM NEWS, 2011). The purpose of this action is inconsistent with the planning operation since the sex-ratios would be unknown unless all wild horses and burros were removed. The post removal aerial survey could not have determined the sex-ratios of the wild horses and burros in the Herd Management Area. This action is unclear.

**Genetics**

Significant controversy by wild horse and burro preservation groups centers around the genetic viability of wild horse and burro populations. Small isolated or sub-divided populations are subject to reduced genetic diversity (Goodloe, Warren, Cothran, Bratton, Trembicki, 1991). Reduced genetic diversity can “impair vigor, fertility, and disease resistance and could limit ability to respond to environmental variation” (Beardmore 1983, as cited in Goodloe et al. 1991). Other research has shown that significantly reducing populations can result in genetic bottlenecks and within the populations there
are hidden population structures that result in behavioral isolation, which further restricts gene flow (Ashley, 2004).

According to the Federal Land Policy Management Act, “wild horses and burros shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat” (FLPMA, 1976). However, according to the leading wild horse genetic expert “the majority of wild equid populations managed by the BLM are kept at population sizes that are small enough for the loss of genetic variation to be a real concern” (Cothran, 2000). The appropriate population size is dependent on the number of breeding adults and other management considerations specific to the population (Goodloe, Warren, Cothran, Bratton, Trembicki, 1991). Research indicates that an “absolute minimum” of 139-185 wild horses are needed to maintain a population that undergoes several removal disturbances during a generation (Singer, Aeignefuss, 2000). This number represents an “absolute minimum” and is not an ideal population size.

The Twin Peaks Herd Management Area is managed as 5 separate home ranges that divide the wild horses and burros into sub-populations. Only 2 of the 5 home ranges meet the “absolute minimum” population level for wild horses as defined by Singer and Aeignefuss (2000). Not one of the home ranges meets the minimum population level for wild burros. See table 8 below.
Table 8 Twin Peaks Wild Horse and Burro Home Range Populations (BLM EA pg. 10-12, 2010).

<table>
<thead>
<tr>
<th>Home Range</th>
<th>Horses</th>
<th>Meets Minimum?</th>
<th>Burros</th>
<th>Meets Minimum?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twin Peaks North</td>
<td>155-288</td>
<td>Yes</td>
<td>22-42</td>
<td>No</td>
</tr>
<tr>
<td>Skedaddle</td>
<td>58-108</td>
<td>No</td>
<td>10-15</td>
<td>No</td>
</tr>
<tr>
<td>Dry Valley Rim</td>
<td>39-72</td>
<td>No</td>
<td>15-22</td>
<td>No</td>
</tr>
<tr>
<td>Observation North</td>
<td>150-216</td>
<td>Yes</td>
<td>5-8</td>
<td>No</td>
</tr>
<tr>
<td>Observation South</td>
<td>46-74</td>
<td>No</td>
<td>20-29</td>
<td>No</td>
</tr>
</tbody>
</table>

*“absolute minimum” of 139-185 wild horses are needed to maintain a population that undergoes several population disturbances per generation (Singer, Aeignefuss, 2000).*

The Twin Peaks Herd Management Area removal plan included a provision to include genetic testing for the horses and burros removed from the Twin Peaks Herd Management Area (BLM NOD, 2010). The genetic testing and results were completed for the wild horses in April 2011, but testing was not done as of October 2011 for burros. The BLM Eagle Lake Field Office did not provide a response to inquiries as to why the burros were not already tested. According to the California BLM State Directors Office
the genetic test results are expected between April and July 2012, almost two years after
the burros were removed.

Genetic testing was completed on 94 wild horses removed from the Twin Peaks
Herd Management Area (Cothran, 2011). The genetic testing results acknowledged the
known population subdivision within the Twin Peaks Herd Management Area, and
concluded that the heterzygosity or genetic variation is “approaching concern levels”
(Cothran, 2011). This report reflects the population in 2010 prior to the removal of 1,637
wild horses, which significantly reduced the population and compounds concerns
regarding genetic variation for the remaining wild horses.

Previous genetic testing for burros was completed in 2003 on 4 burro populations
in California showed low heterzygosity or genetic variation in all of the burro populations
(Cothran, 2003). No action taken by the BLM to improve the genetic viability for burros
has been confirmed.
Chapter 5

FINDINGS

Summary

The BLM Eagle Lake Field Office’s management considerations for the Twin Peaks Wild Horse and Burro Herd Management Area were compared for legislative consistency, application of scientific research and principles, and sustainability of the wild horse and burro populations. The research supported the hypothesis that the BLM’s Wild Horse and Burro Program is politically driven for the following reasons outlined below.
Legislative Consistency

BLM Eagle Lake Field Office’s resource management policies are inconsistent with legislative requirements and instead favor livestock interests in the Twin Peaks Herd Management Area. The following management considerations demonstrate bias toward livestock grazing:

- Allocating 82% of Forage to Livestock
- Permitting 13,730 Livestock Compared to 520 Wild Horses and Burros
- Restricting Wild Horses and Burros to Home Ranges to Accommodate Livestock Allotments
- Supporting Base Property Policies
- Allowing Private Control of Water Resources
- Elimination of Predators on Public Lands to Protect Private Livestock

Science

The BLM Eagle Lake Field Office has failed to incorporate scientific principles to wild horse and burro management. The following management considerations conflict with modern scientific literature and methods:

- Classification as a Non-Native Species
- Un-Scientific Population Survey Methods
- No Genetically Viable Minimums
- No Density Dependent Population Controls
- Elimination of Natural Predators
Sustainability

The BLM Eagle Lake Field Office’s management considerations for wild horses and burros in the Twin Peaks Herd Management Area raise serious concerns regarding the sustainability for future wild horse and burro populations for the following reasons:

- Conflicting Population Inventories
- Lower Than Expected Foaling Rates
- Genetic Variation Approaching Concern Levels
- Failure to Meet Viable Population Minimums
Chapter 6

CONCLUSION

Recommendations

The BLM is required to manage wild horses and burros as “an integral part of the natural system of the public lands” as declared by the Wild Free-Roaming Horse and Burro Act (WFRHBA, 1976). Twin Peaks is a Wild Horse and Burro Herd Management Area and should be managed accordingly. The following recommendations align the legislative requirements, applies scientific principles, improves the sustainability for the remaining wild horses and burros, other native wildlife, and the ecosystem as a whole.

- Classify as Native Species
- Remove Livestock
- Remove Fencing
- Increase Populations
- Introduce and Protect Native Predators
- Provide Equal Protection for Burros
- Obtain Land Parcels Controlling Water Resources

Final Thoughts

The BLM Eagle Lake Field Office has failed to apply both the legislative intent and requirements under the 1971 Wild Free-Roaming Horses and Burros Act, the 1976
Federal Land Policy Management Act, and the scientific principles that protect wild horse and burro populations under federal law. In addition, the office’s policies are in contrast to the public’s opinion and objection to removing wild horses and burros, rather than livestock. There is no public outcry to continue livestock grazing on public lands. Furthermore, the office failed to provide convincing evidence that wild horses and burros were responsible for range degradation or to acknowledge the impacts of the intensive livestock grazing within the Wild Horse and Burro Herd Management Area. In the end, the politically driven policies negatively impact wild horses and burros managed by the BLM on public lands. We can do better…
REFERENCES


