

# **BLM Calico Complex Roundup: A Case Study of a Broken System for Horses and Taxpayers**

*A Report by:  
The American Wild Horse Preservation Campaign (AWHPC)  
www.wildhorsepreservation.org  
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*Wild horses living free in Nevada's Calico Mountains Complex prior to the December 28, 2009 - February 4, 2010 BLM roundup.*

## **I. Executive Summary**

The Bureau of Land Management (BLM) Calico Mountain Complex wild horse roundup was conducted under intense public scrutiny and over strong public opposition. As one of the most closely watched roundups in decades, it represents the best that the BLM has to offer in terms of helicopter capture procedures and care and processing of horses in short-term holding facilities.

Of the 1,922 Calico horses reported as captured by the BLM between December 28, 2009 and February 4, 2010, 86 horses have died to date. Dozens more sustained injuries as a direct result of the helicopter stampede, transport to short-term holding, or confinement in "feedlot"-type holding pens. An additional 40 heavily pregnant mares spontaneously aborted.

Based on BLM reports and expert opinion, the American Wild Horse Preservation Campaign (AWHPC) concludes that a majority of the deaths of the captured Calico horses are related to the trauma and stress of the roundup and capture, the trauma associated with social loss sustained in the destruction of horse family bands, and the ongoing stress of captivity in an unnatural environment.

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Of Particular Note:

- 43 percent of deaths were attributed to diet and metabolic failure, a condition related to the physiological changes induced by the trauma of the roundup and the ongoing stressors related to captivity in BLM holding pens;
- 22 percent of the deaths were attributed solely to "poor condition," with a majority of those deaths involving older horses, raising serious humanitarian concerns about subjecting elderly and ailing horses to the trauma of a helicopter stampede and capture;
- 19 percent of the deaths were attributed to traumatic injury either at the capture site or in the holding pens, including broken necks, spinal and pelvis injuries, fatal hoof and leg damage sustained in the helicopter stampede;
- The high number of spontaneous abortions (at least 40), which are directly related to the winter roundup when heavily pregnant mares are subjected to stress and trauma.

In addition to the high cost to the horses, the AWHPC notes the expense of the Calico roundup, which will cost taxpayers at least \$1.5 million through May, and \$800,000 a year to warehouse the non-adoptable horses over their 20+ year lifespans. This costly policy, which relies on expensive roundups every four years, is pursued while cost-effective on-the-range management strategies are ignored.

This report documents that the BLM's wild horse management policy is neither humane nor sustainable, and it is AWHPC's hope that its contents will add to the weight of evidence calling for reform of the agency's Wild Horse and Burro Management program.

## II. Introduction

On February 4, 2010, the Bureau of Land Management (BLM) completed its roundup of wild horses from the five Herd Management Areas that comprise the Calico Mountains Complex in northwestern Nevada.

Since the roundup commenced on December 28, 2009, 86 of the 1,922 wild horses reported as captured by BLM have died, either as a direct result of the helicopter stampede, or in the aftermath, during transport to the Indian Lakes Road short-term holding facility near Fallon, Nevada or in the holding pens themselves. In addition to these deaths, at least 40 mares spontaneously aborted their late term foals. These deaths<sup>1</sup> are categorized in the charts included as Appendix 1 of this report.



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<sup>1</sup> Fatality and injury is based on self-reporting by the BLM. Public observation and access to documentation has been severely restricted by the agency, meaning that independent verification of BLM reported deaths and injuries is not possible.

The actual fatality rate is likely even higher than those deaths reported by the BLM in its Daily Updates on the Calico gather, since the agency is not recording live births or recording the existence of foals until they are at least four to six months of age. Therefore, the fates of these newborn horses, born to mares who have endured the trauma of the roundup and transition to captivity, are unknown.

While the Calico roundup has been conducted under intense public scrutiny, the fatality rate of this "gather" is in line with mortality associated with other BLM gathers and deaths in BLM short-term holding, for which the Government Accountability Office (2008), based on BLM data, reported a five percent fatality rate.

As such, the Calico roundup provides an excellent case study of the true cost to wild horses of the BLM's policy of "management" by roundup and removal. This policy continues to form the basis of the agency's wild horse and burro management program despite federal law requiring humane and minimally intrusive management by this federal agency.

Such analysis is also instructive because it demonstrates that, no matter what level of care the BLM provides wild horses in the aftermath of the roundup, the trauma of the helicopter stampede and capture itself, along with the social loss caused by the dissolution of family bands, and the stress of captivity on these on these formerly free-living equines, exacts a heavy toll.

Finally, the Calico roundup provides an excellent example of why the BLM's program of mass roundups and removals is fiscally unsustainable, and wasteful of tax dollars in light of more cost-effective and humane options for on-the-range management of wild horses.

### **III. Costly Roundup; Ineffective Policy**

Instead of pursuing on-the-range management options, including fertility control, water improvements, and cooperative agreements with a rancher willing to convert his public livestock grazing allotment to wild horses, the BLM proceeded with the roundup and removal of the Calico horses. In doing so, the agency has perpetuated a broken management model that relies on similarly large and costly roundups every four years to maintain the low Appropriate Management Levels (AMLs) that have been established in the Complex. These AMLs have not changed at all since 1993/1994.

The costs to taxpayers for the Calico roundup through April 2010 exceeds \$1.3 million, including:

- A minimum of \$700,000 paid to the helicopter contractor<sup>2</sup>.
- Over \$200,000 per month paid to Fallon short-term holding contractor (\$3.92/head/day)<sup>3</sup>. This *excludes* costs for BLM staff, veterinary care, processing and branding horses, etc.

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<sup>2</sup> February 10, 2010 Cattoor Livestock Roundups Invoice to U.S. Department of Interior.

<sup>3</sup> Verbal communication on video by John Neill, BLM manager who oversees Fallon holding facility.

In addition, taxpayers are on the hook for the estimated \$1 million a year it will cost to maintain the Calico horses over their 20+ year lifespan, once they are transferred to long-term BLM facilities in the Midwest.<sup>4</sup>

This costly policy, which relies on expensive roundups every four years to maintain horses at artificially low AMLs, is pursued while cost-effective, on-the-range management strategies are ignored. These strategies include:

- Range enhancements, such as repair of the hundreds of natural springs that exist in the complex and have been damaged over the years;
- Reductions in livestock grazing (currently livestock are allotted over half the available forage in the complex; wildlife and wild horses must share the rest<sup>5</sup>), including cooperative arrangements with local ranchers who wish to convert grazing allotments to wild horses in order to promote ecotourism;
- Reproductive control through PZP immunocontraception. A model created by an economist for the Humane Society of the United States demonstrates cost savings in the tens of millions through BLM implementation of an aggressive fertility control program utilizing PZP immunizations on wild horses.

#### IV. High Cost of Roundup to Calico Horses



Appendix 1 of this report includes a summary of the 86 deaths, at least 40 miscarriages and numerous injuries that occurred during the December 28, 2009 - February 4, 2010 Calico Complex roundup.

The information is based on the Daily Updates provided by the BLM on its website. The deaths include:

- Seven deaths at the trap site, including a foal who collapsed and died from a "pulmonary artery rupture" during the capture;

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<sup>4</sup> Based on most recent BLM long-term holding contract of \$1.32/head/day; 400 projected Calico births and 200 potential adoptions.

<sup>5</sup> [Environmental Assessment](#) on the Calico Mountains Complex Wild Horse Capture Plan, December 2009.



- Five deaths due to hoof and/or leg injuries, including two young foals whose hooves sloughed off and a young mare who was euthanized due to sole abscesses;
- 11 deaths attributed to injuries sustained in the holding facility, or in transport to the holding facility. The majority of these deaths stemmed from broken necks and spinal injuries sustained when terrified horses crashed into gates or were injured during processing when being loaded into chutes.
- 37 deaths due to diet or metabolic problems, including "failure to adjust to a change in feed," colic, and "poor condition, hyperlipemia and metabolic failure."
- 19 deaths attributed solely to "poor condition." Over half of these horses were estimated to be age 20 or older.

**An additional 40 or more pregnant mares suffered spontaneous abortions.**

## **V. Majority of Deaths Attributable to Trauma and Stress of Roundup and Holding Pens**

Based on BLM reports and expert opinion, AWHPC concludes that a majority of the deaths of the captured Calico horses are related to the trauma and stress of the roundup and capture, the trauma associated with social loss sustained in the destruction of horse family bands, and the ongoing stress of captivity in an unnatural environment.

In his report attached here as Appendix 2, Dr. Bruce Nock, Associate Professor Washington University School of Medicine, Departments of Psychiatry and Anatomy and Neurobiology and founder of [Liberated Horsemanship](#), describes the physiological changes that take place during the helicopter stampede, which triggers "fight of flight" reactions in the wild horses.

*"Resources are shunted to organs and processes that are critical for surviving the moment... Long-term projects, like reproduction, are put on hold when the fight-or-flight reaction is active . . . , [Digestion comes] to a screeching halt as soon as the horse was alarmed. . . . Perfect conditions for the development of intestinal compactions and colic—the #1 killer of horses. . . .*

*But these overt consequences are just the tip of the iceberg. . . The body doesn't distinguish between a fight-or-flight situation, like being chased by a helicopter, and a psychological stressor. **That means the bad news for wild horses only begins with the gather. . . . To these wild horses, the sources of stress must seem endless. Everything is foreign ... truly disturbing for a species that depends on familiarity for safety and comfort. . . .***

*Everything about captivity is probably stressful to one degree or another to wild horses, especially when it begins with the traumatic experience of a gather. It is extremely detrimental to their long-term health and soundness. (Emphases added.)*

According to Dr. Nock, the sources of stress for wild horses confined in BLM holding pens include:

- Confinement - "stressful. . . . to a species who depends on running for survival and who instinctively avoids places where they might get trapped."
- Social unrest and disruption, including separation from lifelong herd mates and confinement in close quarters with unfamiliar horses.

- Boredom
- Loss of control which "is a powerful psychological stressor." "The ability to control one's own movement and activity is as important to horses as it is to us," Dr. Nock states.

#### **A. DIGESTIVE AND METABOLIC PROBLEMS**

By far the largest number of deaths -- 43 percent -- fall into this category, including failure to adapt to feed change, hyperlipemia, and colic.

Dr. Nock describes hyperlipemia as a syndrome characterized by negative energy balance and rapid mobilization of peripheral adipose tissue, a condition that can be triggered by stress. Fatty acids infiltrate the liver and triglycerides accumulate in the plasma, resulting in elevated serum triglyceride levels and impaired liver function<sup>6</sup>.

In his opinion, the physiological changes caused by the trauma of the roundup and the ongoing stressors related to captivity in BLM holding pens (under conditions that even BLM employee [John Neill describes as "feedlot conditions"](#) ), set the stage for these metabolic disorders. As expected, this stress exacts a heavy toll on older horses, pregnant mares and other horses in less-than-optimal physical conditions.

#### **B. "POOR CONDITION"**

Of the deaths, 22 percent (19 horses) were attributed solely to "poor condition." Most of these horses (14 of 19) were euthanized by BLM personnel<sup>7</sup>, while five were found dead.

Another 24 horses whose deaths were attributed to metabolic failure or failure to adapt to feed change were also noted to be in "poor condition."

Factors contributing to the poor condition of these horses include age (10 of the 19 horses whose deaths were attributed solely to poor condition were age 20 or older) and the timing of the roundup, which was conducted in the dead of winter when forage resources are low and horses commonly utilize fat stores to survive.

The stress of the roundup, capture and confinement would be expected to take its greatest toll on old horses and those in weaker physical condition.

The number of horses who died in "poor condition" is a small percentage of the overall number of horses gathered. Although some of these horses almost certainly would have died on the range over the winter, as a result of the roundup, they were terrorized and traumatized in a helicopter stampede and capture, and separated from their family members before dying or being euthanized. This raises serious humanitarian concerns about the BLM's mass roundup and removal policy.

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<sup>6</sup> Personal communication, email, April 6, 2010.

<sup>7</sup> Two horses were euthanized at the gather site, while the remaining 12 were euthanized at the Fallon holding facility.

## **C. TRAUMATIC INJURIES**

Of the total deaths, 19 percent (16 horses) involved traumatic injuries, either at the capture site or in the holding pens at Fallon. These include:

### **1. Hoof injuries:**

Some of the more egregious deaths involved young horses whose feet were irreparably damaged in the roundup. In an interview with The Mustang Project, the BLM's John Neill attributed these injuries directly to the helicopter chase.:

" Extreme trauma to the foot / feet due to traveling too far over rocky terrain, that's what's happening there. It isn't related to a diet change issue or anything nutritionally related. These two colts that have this trauma came in with poor body condition prior to the gather. The gather had nothing to do with their poor condition. The gather *did* have most likely everything to do with the trauma to their feet."

In addition to the deaths, BLM reported numerous injuries related to lameness and hoof trauma resulting from the gather, including, "about 20 to 25 horses "received treatment for various injuries or lameness and are recovering" and "Several colts with sole abscesses are also in the hospital pens."

### **2. Processing related deaths:**

- One 12 year-old mare was euthanized for a spinal fracture due to collision with a fence while sorting.
- A yearling filly died when she suffered a spinal neck fracture. She was standing unattended in a chute waiting to be moved forward for adoption preparation when she jumped forward injuring herself.
- 2-year-old mare "died on her own" due to a spinal injury, which occurred when a larger horse backed into her during approach to a squeeze chute.

### **3. Fatal injuries in holding pens:**

- Stallion euthanized due to spinal/head injury.
- Stallion euthanized due to shoulder injury.
- Healthy stallion found dead by damaged corral panel; fractured neck when terrified by presence of a helicopter at facility on February 14, 2010.
- Mare with "spinal injury" euthanized; had been in large pen with "general population."
- Mare euthanized; neck fracture after colliding with corral panel.
- Mares euthanized with "pelvis injury" and "one spinal injury"
- Mare ran into gate and broke her neck.

#### 4. Fatal injuries during transport:

- Mare was kicked in head while being transported from gather corral to gather corral. Euthanized. Eye globe was ruptured.
- Mare “down on transport truck arrived at the facility alive, but subsequently died.” No cause of death noted.

#### D. MISCARRAIGES

Although the BLM has attributed these deaths to poor conditions of the mares coming off the range, there can be no doubt that the trauma and stress of captivity played a major role in the large number of miscarriages.



According to Dr. Nock:

*The fight-or-flight reaction is about surviving the moment—not efficiency, not growth, not repair. Resources are shunted to organs and processes that are critical for surviving the moment. Long-term projects, like reproduction, are put on hold when the fight-or-flight reaction is active. Expending resources to sustain and maintain a fetus, for example, just isn't physiological if it seems like you are about to die. It isn't surprising that the BLM reported 20 – 30 mares “miscarried” in association with the Calico Complex Gather. In addition to the miscarriages, one wonders whether and how many fetuses were resorbed by mares?*

In the interview with The Mustang Project, John Neill describes the impacts of the roundups on mares and foals depending on the season the gathers are undertaken:

*BLM's gather season runs from July 1<sup>st</sup> through the end of February each year. In July, we normally have fewer issues with dietary changes because usually the feed that they are eating on the range has more nutritional value to it and in it, so they can adapt a lot easier to domesticated feed. The mares are not very far along in gestation if we are looking at the average foaling season in the spring. So there is a lot less trauma to the mares in the summer. However, there is increased trauma to the colts because they are normally born in the spring; they're smaller – usually they're around 4 months old or so. So there's increased trauma there as far as stone bruising on the feet, things like that.*

*Now, in the winter, like with the Calico gather, the colts are way bigger; they're 6-10 months old. There's a lot less trauma with them but there's increased trauma to the mares because there's less forage out there, especially because they're so far along in their gestation period so they're bodies are under a lot of strain. So the different times of year affects the different ages of animals. Obviously, if the mare is under strain, and you stress her with diet change, nature is basically going to say, “Ok, let's get rid of the foal that's inside of me in order to preserve myself.”*



*Sometimes that happens and that works. Other times it doesn't – there's a miscarriage and the mare still doesn't survive.*

## **VI. Conclusion**

This report demonstrates that the BLM's continued reliance on mass roundups and removals of wild horses from Herd Management Areas is both costly to taxpayers and to the horses themselves. The sustainability of which has been called into question by several recent government reports and federal court decisions. These include:

- Government Accountability Office (GAO) report (October 2008) found: "The number of animals removed from the range is far greater than the number adopted or sold, which has resulted in the need for increased short-term and long-term holding. . . . *If not controlled, off-the-range holding costs will continue to overwhelm the program.*"
- The Senate Appropriations Committee in Fiscal Year 2010 appropriations noted that BLM roundup and holding costs "have risen beyond sustainable levels."
- U.S. District Court (District of Columbia) Judge Paul L. Friedman wrote (December 23, 2009): *"The plaintiffs protest that the Wild Horse Act clearly does not permit such long-term holding of horses by BLM, and the Court finds that argument persuasive.*
- U.S. District Court Judge Rosemary Collyer found (June 2009) that: *"Congress did not authorize BLM to 'manage' the wild horses by corralling them for private maintenance or long-term care as non-wild free-roaming animals off of the public lands. . . . Moreover, the statute expressly provides that BLM's 'management activities shall be at the minimal feasible level' ... It is difficult to think of a 'management activity' that is farther from a 'minimal feasible level' than removal."*

AWHPC hopes that this report on the fiscal and humane costs of the Calico roundup will add to the accumulating weight of evidence demanding reform of the BLM's broken wild horse and burro program.

# **Appendix 1**

## **Charts on BLM Reported Deaths by Category**

# Calico Complex Gather Deaths and Injuries

*As of April 14, 2010*

## I. Introduction

The following pages include references, by category, of deaths and injuries that occurred during the December 2009 through February 2010 Calico Complex Gather, conducted by the Bureau of Land Management's Wild Horse and Burro Program. The following charts include information taken directly from the [Gather Activity Update](#), through Wednesday, April 14, 2010.

The Calico Complex Gather began December 28, 2009, and concluded on February 4, 2010, with a reported 1,922 wild horses removed from the five herd management areas that comprise the Calico Complex. The BLM estimates that 600 wild horses remain in this 550,000-acre complex.

The categories used to organize this summary report are as follows:

- A. Deaths Due to Hoof and Leg Injuries
- B. Deaths Attributed to Diet and Metabolic Failure
- C. Deaths Due to Injuries at the Holding Facility or During Transport to the Facility
- D. Deaths at the Gather Site
- E. Deaths Due to Other Causes
- F. Miscarriages
- G. Horses Separated into Hospital Pens
- References and Documents used to create this document

Sections A through E are categories for documented deaths; therefore, based upon the BLM's Gather Activity Update daily entries, the count of deaths identified during this gather (up through April 14, 2010) is 83.

Each entry included in this document has an "Entry Date" which directly corresponds to the Entry Date within the BLM's Gather Activity Update. The notes for "Cause of Death" or other information included are taken directly from the BLM's documentation for each entry date.

Also included, when available, is the "Capture Area I.D." which identifies location of the horses' capture. The BLM did note area of capture for some horses mentioned in the Gather Activity Update, but not consistently or always very clearly. Capture area identification was included here when it was clearly noted in the BLM's Gather Activity Update for each entry/incident.

## II. Summary of Deaths and Injuries

### A. Deaths Due to Hoof and Leg Injuries

The following is a list of incidents reported in the Bureau of Land Management's Wild Horse and Burro Program "Gather Update Activity" for the Calico Complex (Nevada) Gather, conducted December 28, 2009 through February 4, 2010.

These are BLM reported incidents where horses died due to abscesses, hoof slough, or leg injury.

	<u>Entry Date</u>	<u>Capture Area I.D.</u>	<u>Cause of Death</u>
1.	March 10, 2010	Warm Springs HMA, Humboldt Co.	A yearling filly with a stifle injury ("cause unknown") was euthanized. This filly was in a hospital pen and had received "treatment."
2.	February 4, 2010	Warm Springs HMA, Humboldt Co.	Mare arrived in "sound condition and became lame", "hind leg bone fracture" noted. Mare was euthanized.
3.	January 30, 2010	Warm Springs HMA, Humboldt Co.	See Veterinarian Report. 8-month-old colt euthanized. Had sole abscess and hoof slough.
4.	January 27, 2010	No capture area identified	One mare (or filly) was euthanized; had sole abscess and pelvis injury.
5.	January 21, 2010	Black Rock East HMA, Humboldt Co.	See Veterinarian Report. Colt with hoof abscesses and hoof sloughs was euthanized on 1-18-10.

Additionally, see Section G for horses that were separated into hospital pens due to lameness or abscesses for observation and treatment. Also, see entry for February 4 in Section D.

In the "Calico Gather Wild Horse Deaths" document (as of January 26, 2010), it is also noted, on page 3, "Approximately 20-25 wild horses have been treated for lameness. Depending on the severity of lameness, horses are either left in their pen with soft sand to recover on their own or penned separately for treatment. Treatment consists of anesthetic for restraint, phenylbutazone, penicillin, draining of sole abscesses, and application of bandages as required."

## **B. Deaths Attributed to Diet and Metabolic Failure**

The following is a list of incidents reported in the Bureau of Land Management's Wild Horse and Burro Program "Gather Update Activity" for the Calico Complex (Nevada) Gather, conducted December 28, 2009 through February 4, 2010.

These are deaths of captured wild horses attributed to "change in feed," or "colic," or "metabolic failure," or "hyperlipemia," or some combination of these conditions. These are deaths that are being attributed to feed changes or possibly related to digestive tract failure.

See "History and Report on Outcomes and Complications for Horses Adapting to Hay" included as a BLM document in the "Gather Update Activity" for the Calico Complex Gather.

	<b><u>Entry Date</u></b>	<b><u>Capture Area I.D.</u></b>	<b><u>Cause of Death</u></b>
6.	April 9, 2010	No capture area identified	One weaned stud colt died due to colic.
7.	March 21, 2010	No capture area identified	5-year-old mare in hospital pen euthanized due to hyperlipemia/metabolic failure.
8.	March 20, 2010	No capture area identified	12-year-old mare died "on her own due to hyperlipemia/metabolic failure."
9.	March 15, 2010	No capture area identified	20-year-old "poor condition" mare euthanized due to hyperlipemia/metabolic failure.
10.	March 7, 2010	No capture area identified	10-year-old stallion euthanized due to hyperlipemia and metabolic failure.
11.	March 5, 2010	No capture area identified	15-year-old mare euthanized due to colic.
12.	March 1, 2010	No capture area identified	20-year-old poor condition mare euthanized due to hyperlipemia/metabolic failure.
13.	February 27, 2010	No capture area identified	20-year-old poor condition mare euthanized due to hyperlipemia/metabolic failure.
14.	February 27, 2010	Warm Springs HMA, Humboldt Co.	Stallion euthanized due to hyperlipemia/metabolic failure.
15.	February 26, 2010	No capture area identified	20-year-old poor condition mare euthanized due to hyperlipemia/metabolic failure.
16.	February, 25, 2010	No capture area identified	20-year-old poor condition stallion died due to metabolic failure/hyperlipemia.
17.	February 24, 2010	No capture area identified	20-year-old poor condition mare euthanized due to hyperlipemia/metabolic failure.
18.	February 23, 2010	No capture area identified	20-year-old poor condition mare euthanized due to hyperlipemia/metabolic failure.



19.	February 20, 2010	No capture area identified	25-year-old stallion euthanized due to “poor condition, hyperlipemia and metabolic failure.”
20.	February 20, 2010	No capture area identified	Mare, 4-years-old, euthanized due to “poor condition, hyperlipemia and metabolic failure.”
21.	February 13, 2010	Calico HMA, Washoe and Humboldt Cos.	Mare died due to “metabolic failure.” Also attributed death to “poor condition, hyperlipemia.”
22.	February 12, 2010	No capture area identified	One stallion euthanized due to “poor condition and colic.”
23.	February 11, 2010	Black Rock West HMA, Humboldt Co.	Nine-month-old colt found dead due to colic.
24.	February 9, 2010	Black Rock East HMA, Humboldt Co.	Mare euthanized due to “poor condition/hyperlipemia and metabolic failure.”
25.	February 9, 2010	Warm Springs HMA, Humboldt Co.	Mare euthanized due to “poor condition/hyperlipemia and metabolic failure.”
26.	February 8, 2010	Black Rock West HMA, Humboldt Co.	15-year-old stud euthanized due to “poor condition, hyperlipemia and metabolic failure.”
27.	February 7, 2010	Warm Springs HMA, Humboldt Co.	Mare euthanized due to “poor condition, hyperlipemia and metabolic failure.”
28.	February 7, 2010	Black Rock West HMA, Humboldt Co.	Stud euthanized due to “poor condition, hyperlipemia and metabolic failure.”
29.	February 4, 2010	Warm Springs HMA, Humboldt Co.	15-year-old mare euthanized due to “hyperlipemia and metabolic failure.”
30.	February 4, 2010	Black Rock East HMA, Humboldt Co.	18-year-old mare euthanized due to “hyperlipemia and metabolic failure.”
31.	January 31, 2010	No capture area identified	Mare, 10 years old, died from “poor condition” and “failure to adjust to new diet.” Treated in hospital pen for 8 days.
32.	January 30, 2010	Black Rock East HMA, Humboldt Co.	Mare, six years old, euthanized due to “poor condition” and “not able to transition to change in diet.”
33.	January 27, 2010	No capture area identified	Mare euthanized due to “poor condition” and “not adapting to diet.”
34.	January 27, 2010	No capture area identified	Mare euthanized due to “poor condition” and “not adapting to diet.”

35.	January 26, 2010	No capture area identified	12-year-old mare in “poor condition and not adapting to change in feed” euthanized.
36.	January 26, 2010	No capture area identified	12-year-old mare in “poor condition and not adapting to change in feed” euthanized.
37.	January 23, 2010	No capture area identified	Mare euthanized due to poor body condition and not able to transition to new diet.
38.	January 23, 2010	No capture area identified	Mare euthanized due to poor body condition and not able to transition to new diet.
39.	January 14, 2010	No capture area identified	Mare found dead; death attributed to “failure to adjust to a change in feed.”
40.	January 14, 2010	No capture area identified	Mare found dead; death attributed to “failure to adjust to a change in feed.”
41.	January 14, 2010	No capture area identified	Stallion found dead; death attributed to “failure to adjust to a change in feed.”
42.	January 11, 2010	Black Rock East HMA, Humboldt Co.	Mare “died of dietary feed change,” found dead over a weekend.

Additionally, horses that were “not adapting to the change in diet” were moved to hospital pens.

Per the BLM document “Calico Gather Wild Horse Deaths (As of January 26, 2010):  
Summary for January 23, 2010:

- “14 very thin mares were removed from the general population and were placed in hospital pens for observations. They were assessed for weight loss/not adapting to the change in diet. All were eating and drinking. The majority are expected to recover, but some may not.”

**C. Deaths Due To Injuries at Holding Facility or During Transport to Holding Facility**

The following is a list of incidents reported in the Bureau of Land Management’s Wild Horse and Burro Program “Gather Update Activity” for the Calico Complex (Nevada) Gather, conducted December 27, 2009 through February 5, 2010.

These are BLM reported incidents where captured wild horses died or were euthanized due to injuries including “broken neck,” or “spinal injury.”

Note: On Feb. 14, an “unidentified helicopter” circled the facility, inducing obvious stress in captured horses. Helicopter hovered and circled corrals. See entry for February 15, 2010.

	<u>Entry Date</u>	<u>Capture Area I.D.</u>	<u>Cause of Death</u>
43.	March 31, 2010	No capture area identified	One 12 year-old mare was euthanized for a spinal fracture due to collision with a fence while sorting.
44.	March 12, 2010	No capture area identified.	A yearling filly died when she suffered a spinal neck fracture. She was standing unattended in a chute waiting to be moved forward for adoption preparation when she jumped forward injuring herself.
45.	February 27, 2010	Warm Springs, HMA, Humboldt Co.	Stallion euthanized due to spinal/head injury.
46.	February 27, 2010	Warm Springs, HMA, Humboldt Co.	Stallion euthanized due to shoulder injury.
47.	February 20, 2010	No capture area identified	2-year-old mare “died on her own” due to a spinal injury, which occurred when a larger horse backed into her during approach to a squeeze chute.
48.	February 15, 2010	No capture area identified	Healthy stallion found dead by damaged corral panel; fractured neck when terrified by presence of a helicopter at facility on February 14, 2010.
49.	February 5, 2010	No capture area identified	Mare with “spinal injury” euthanized; had been in large pen with “general population.”
50.	February 4, 2010	Warm Springs HMA, Humboldt Co.	Mare euthanized; neck fracture after colliding with corral panel after being moved from one pen to another.
51.	**January 27, 2010	No capture area identified	**Mare or filly euthanized with “ one spinal injury and one sole absess (sic) and pelvis injury.”
52.	January 23, 2010	No capture area identified	Mare ran into gate and broke her neck.

53.	January 21, 2010	Warm Springs HMA, Humboldt Co.	Mare “down on transport truck arrived at the facility alive, but subsequently died.” No cause of death noted.
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\*\*BLM Daily Update for January 27, 2010, is unclear: “One filly and three mares were euthanized at the Fallon facility. Two were in poor condition and not adapting to change in diet, one spinal injury and one sole abscess (sic) and pelvis injury. One filly was found dead of unknown cause at the facility.” Since 4 deaths were noted for that day by the BLM, the assumption is made that one mare or filly had spine injury, a sole abscess, and a pelvic injury.

#### **D. Deaths at the Gather Site**

The following is a list of incidents reported in the Bureau of Land Management's Wild Horse and Burro Program "Gather Update Activity" for the Calico Complex (Nevada) Gather, conducted December 27, 2009 through February 5, 2010.

The following are deaths that occurred directly at the gather site(s), before transportation.

Note: The Gather Activity Update entry for January 30, 2010, notes a fatality that occurred at the Gather site, but is listed under Section C, "Deaths Due to Injuries."

Note: The BLM's Gather Activity Updates are vague, and refer to horses found "dead in corral." One does not know if this refers to a Fallon Facility corral or a Gather Site corral. Other dates that MAY have gather site deaths include: January 23 and January 25, 2010. The deaths on those dates are referenced elsewhere in this document.

54.	February 4, 2010	Granite HMA, Washoe Co.	Stud euthanized at gather site; had broken leg from "severe pre-existing injury" and "hoof was abnormally worn."
55.	January 30, 2010	Granite HMA, Washoe Co.	4-year-old mare was kicked in head while being transported at from capture pens to holding corrals at trap site. Euthanized. Eye globe was ruptured.
56.	January 29, 2010	Calico HMA, Washoe and Humboldt Cos.	Stud with "severely deformed hoof and ankle" euthanized at gather site.
57.	January 29, 2010	Calico HMA, Washoe and Humboldt Cos.	Mare in "very poor condition" euthanized at gather site.
58.	January 7, 2010	Black Rock West, Humboldt Co.	Mare, 20-plus years old, euthanized, "in poor body condition."
59.	January 1, 2010	Black Rock East HMA, Humboldt Co.	Colt died during "capture operations;" the colt died while being chased by helicopter; "pulmonary artery rupture" noted. See Veterinarian report.
60.	December 30, 2010	Black Rock East HMA, Humboldt Co.	Mare, 20-plus years old, euthanized at gather site; body condition index of "2" noted; poor condition.



## **E. Deaths Due To Other Causes**

The following is a list of incidents reported in the Bureau of Land Management's Wild Horse and Burro Program "Gather Update Activity" for the Calico Complex (Nevada) Gather, conducted December 27, 2009 through February 5, 2010.

These are BLM reported incidents where captured wild horses died or were euthanized due to other reasons, including "poor condition", pneumonia, deformity, or foaling complications.

Please note that the BLM offers no definition on the specifics of their use of "poor condition" other than Henneke Body Scoring Condition rating. One does not understand if the "poor condition" is related solely to a body score, as no score is given, or if there are other attributing factors for designating the horse as being in a "poor condition." The BLM does not offer photos and/or detailed, professional assessments of these (and the other) deaths.

	<b><u>Entry Date</u></b>	<b><u>Capture Area I.D.</u></b>	<b><u>Cause of Death</u></b>
61.	April 10, 2010	No capture area identified.	25-year old mare "found dead. Diagnosis of death due to old age."
62.	April 8, 2010	No capture area identified	On March 6, 2010 a "mare died while giving birth."
63.	April 5, 2010	No capture area identified	25-year-old "poor condition" stallion euthanized.
64.	April 4, 2010	No capture area identified	20-year-old "poor condition" stallion euthanized.
65.	March 27, 2010	No capture area identified	5-year-old stallion found dead in general population; died of "unknown causes."
66.	March 17, 2010	No capture area identified	25-year-old stallion euthanized "due to poor condition" from "tooth loss."
67.	March 6, 2010	No capture area identified	25-plus-year-old mare euthanized; "unable to maintain body condition."
68.	March 6, 2010	No capture area identified	25-plus-year-old stallion euthanized; "unable to maintain body condition."
69.	February 22, 2010	No capture area identified	20-year-old poor condition mare euthanized.
70.	February 21, 2010	No capture area identified	10-year-old mare found dead due to "foaling complications." Colt "undeliverable due to improper presentation."
71.	February 17, 2010	No capture area identified	Weaned colt euthanized due to "poor body condition."
72.	February 16, 2010	Warm Springs HMA, Humboldt Co.	Stallion euthanized due to declining health and poor body condition.
73.	February 14, 2010	No capture area identified	Mare died; death attributed to pneumonia. No Veterinarian report.
74.	February 10,	Black Rock West	15-year-old stud in "poor condition"

	2010	HMA, Humboldt Co.	found dead.
75.	February 6, 2010	No capture area identified	Stud, 6-years old, died due to "poor condition."
76.	February 3, 2010	Black Rock West HMA, Humboldt Co.	Mare, 25-years old, euthanized; "poor condition" noted.
77.	February 1, 2010	Black Rock East HMA, Humboldt Co.	Mare, 12-years old, euthanized; "poor condition" noted.
78.	January 29, 2010	No capture area identified	Mare euthanized due to "very poor condition."
79.	January 29, 2010	No capture area identified	Mare euthanized due to "very poor condition."
80.	January 29, 2010	No capture area identified	Mare found dead; "poor condition" noted.
81.	January 29, 2010	No capture area identified	Mare found dead; "poor condition" noted.
82.	January 27, 2010	No capture area identified	Filly found dead; cause of death "unknown."
83.	January 25, 2010	No capture area identified	Stallion found dead in corral; cause of death "unknown,"
84.	January 23, 2010	No capture area identified	Mare found dead in corral; no cause of death noted.
85.	January 18, 2010	No capture area identified	Foal born "on Thursday" euthanized on Friday "after it became apparent that it could not thrive."
86.	January 13, 2010	Black Rock West HMA, Humboldt Co.	Mare, 12 years old, died at the Fallon facility "weak and in poor condition." She was at the facility for four days.

## **F. “Miscarriages”**

The following is a list of incidents reported in the Bureau of Land Management’s Wild Horse and Burro Program “Gather Update Activity” for the Calico Complex (Nevada) Gather, conducted December 27, 2009 through February 5, 2010.

Capture areas are not identified by the BLM for the mares that had spontaneous abortions of their fetuses.

	<b><u>Entry Date</u></b>	<b><u>Number of Miscarriages Reported</u></b>
1.	March 5, 2010	Two miscarriages noted
2.	March 4, 2010	One miscarriage noted
3.	February 25, 2010	Two miscarriages noted
4.	February 23, 2010	One miscarriage noted
5.	February 18, 2010	One miscarriage noted
6.	February 13, 2010	One miscarriage noted
7.	February 7, 2010	One miscarriage noted
8.	February 1, 2010	One miscarriage noted
9.	January 31, 2010	Two miscarriages noted
10.	January 29, 2010	“20 to 30 mares have miscarried.” Also, “mares are thin to very thin.”

**Please Note Entry for February 21, 2010:** (listed in Section E, “Deaths Due To Other Causes”): February 21, 2010, 10-year-old mare found dead due to “foaling complications.” Colt “undeliverable due to improper presentation.”

**Please Note Entry for January 18, 2010:** (listed in Section E, “Deaths Due To Other Causes”): January 18, 2010, Foal born “on Thursday” was euthanized “after it became apparent that it could not thrive.”

Additionally, it is noted in the BLM Daily Updates for April 3, 2010, and subsequent dates, “Mares are actively foaling.” No information about the births, or health of foals, is given.

## **G. Horses Separated Into Hospital Pens**

The following is a list of incidents reported in the Bureau of Land Management's Wild Horse and Burro Program "Gather Update Activity" for the Calico Complex (Nevada) Gather, conducted December 27, 2009 through February 5, 2010.

These entries report horses put in "hospital pens" for observation and treatment due to poor conditions, sole abscesses, injuries and/or lameness.

(Note: some of these horses subsequently died.)

	<b><u>Entry Date</u></b>	<b><u>Capture Area I.D.</u></b>	<b><u>Injury or Illness</u></b>
11.	April 8, 2010	No capture area identified	One mare was placed in the hospital pen for a vaccine abscess and will be treated.
12.	March 27, 2010	No capture area identified	One stallion treated for hoof wound and placed in hospital pen.
13.	March 24, 2010	No capture area identified	Two stallions treated and put in hospital pens, one with fore-leg wound, and one with sole abscess.
14.	March 23, 2010	No capture area identified	Stallion with "fore-leg wound" and another stallion with sole abscess placed in hospital pens.
15.	March 18, 2010	No capture area identified	One mare placed in hospital pen for "shoulder wound."
16.	March 12, 2010	No capture area identified	Two horses with abscesses at vaccination injection sites moved to hospital pens.
17.	March 11, 2010	No capture area identified	16 "poor condition" horses, mare with sole abscess, continuing care in hospital pens. Mare with "leg injury" from general population moved to hospital pen.
18.	March 2, 2010	No capture area identified	Horses isolated from general population include 16 poor condition horses, one stifle injury and one with sole abscess.
19.	February 20, 2010	No capture area identified	Several colts with sole abscesses are also in the hospital pens.
20.	February 20, 2010	No capture area identified	Several "poor condition" mares continue to be held in hospital pens.
21.	February 19, 2010	Granite HMA, Washoe Co.	Four mares added to hospital pens due to poor condition.
22.	February 18, 2010	No capture area identified	Several colts with sole abscesses are also in the hospital pens for rest and treatment.
23.	February 18, 2010	No capture area identified	Several poor condition mares continue to be held in hospital pens.
24.	February 16, 2010	No capture area identified	Several colts with sole abscesses held in hospital pen.
25.	February 15, 2010	Calico HMA and Warm Springs HMA, Humboldt	Several mares being held in hospital pens and under observation due to "poor condition."

		and Washoe Cos.	
26.	February 14, 2010	No capture area identified	Several colts with sole abscesses held in hospital pens; treated and observed.
27.	February 11, 2010	Granite HMA, Washoe Co.	Four horses moved to hospital pens for "poor body condition."
28.	January 21, 2010	No capture areas identified	About 20 to 25 horses have "received treatment for various injuries or lameness and are recovering."

Per the BLM document "Calico Gather Wild Horse Deaths (As of January 26, 2010):  
Summary for January 23, 2010:

- "14 very thin mares were removed from the general population and were placed in hospital pens for observations. They were assessed for weight loss/not adapting to the change in diet. All were eating and drinking. The majority are expected to recover, but some may not."
- "15 horses were treated/assessed for lameness or wounds as per lameness treatment. Six horses were released to general population; nine horses were kept in the hospital pen for retreatment and reassessment for lameness/wounds."



### **III. References and Relevant Documents**

#### **A. BLM Documents**

- 1) Calico Gather Wild Horse Deaths (As of January 26, 2010).
- 2) Gather Activity Updates (Through April 6, 2010).
- 3) Calico Mountains Complex History and Report on Outcomes and Complications for Horses Adapting to Hay.
- 4) Necropsy {Animal Death} Report dated 1-1-10.
- 5) BLM Gather Standard Operating Procedures, copied from Appendix A of Calico Complex Gather Environmental Assessment Report.
- 6) Veterinarian's Report for Colt Death on January 22, 2010.
- 7) History and Report on Sloughed Hoof Colt, dated February 6, 2010.
- 8) Calico Fact Sheet (taken from Calico EA) which describes the terrain of the Calico Complex.
- 9) Herd Management Areas, Northwest Nevada, map (from BLM website).

#### **B. Other Documents**

- 1) "Wild Horses – The Stress of Captivity" Expert Commentary by Dr. Bruce Nock.
- 2) An interview transcript of John Neill, Manager of the Fallon Holding Facility, conducted by Tracie Lynn Thompson, on February 8, 2010, and posted on The Mustang Project.

*Prepared by Jane Bicquette on behalf of the American Wild Horse Preservation Campaign*

# **Appendix 2**

**“Wild Horses – The Stress of Captivity”**

**by**

**Bruce Nock, PhD**

# WILD HORSES — THE STRESS OF CAPTIVITY

Bruce Nock, PhD

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Liberated Horsemanship  
LiberatedHorsemanship.com

Stress — we've all experienced it at one time or another. Too little time, not enough money, loss of a loved one, problems with no good solutions, thoughts of death, taxes, traffic, deadlines, boredom, aches, pains, illnesses. Sometimes the causes of stress seem endless.

Here's the thing. I bet everyone reading this knows too much stress isn't good. A little maybe is OK under some circumstances. It can be a motivator for some people, even fun. More than that ... not so good.

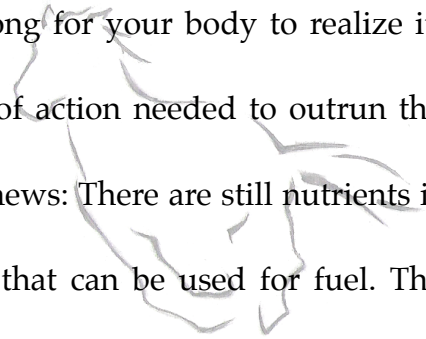
But few people really appreciate how damaging too much stress is and how far reaching its negative consequences are. It might surprise you but experts now commonly estimate that up to 90% of all of our visits to primary care physicians are stress related in one way or another. Ninety percent! What if I changed it around a little and said 90% of all of our visits to physicians were related to some environmental contaminant? There would be panic in the streets. Protests. People screaming for the government to get it cleaned up, right?

The evidence that stress is a powerful destructive force is indisputable. It pokes and prods, finds weaknesses, and then exaggerates them ... turns them into pathologies. Diseases and disorders from the common cold to degenerative diseases like diabetes to the atrophy of certain brain regions are now known to be caused or made worse by stress. There is every reason to believe the same is true for horses. And it may be hard to believe but psychological stress is the worst kind.

So let me tell you what happens to a wild horse's physiology when he/she suffers the severe stress, trauma, of being chased and sequestered into captivity. Then, I'll tell you what some of the consequences are. I don't think it's an exaggeration to say, as gathers are routinely done in the USA, if a wild horse doesn't die straight off from the immediate devastation and commotion, it compromises him/her physically and mentally, putting him on a path of accelerated deterioration.

## **THE CHASE**

There you are, a wild horse leisurely passing the day on the open rangelands of western United States. Life is good—congenial herd mates, nice weather and enough to eat. Suddenly you are startled by movement and strange sounds behind you. All of your senses instantly come alive—your eye sight sharpens and your hearing becomes more acute. You make a flash decision ... run!



But it doesn't take long for your body to realize it's going to take a ton of energy to fuel the burst of action needed to outrun that thing in the sky that's coming after you. Good news: There are still nutrients in your bloodstream from when you were grazing that can be used for fuel. The bad news is, insulin is directing it into cells for storage. But this isn't a time to store energy away; you might need all that you can get to survive the moment. So your sympathetic nervous system kicks in and turns insulin secretion off. At the same time, cortisol, a hormone secreted by the adrenal glands, makes cells insensitive to any insulin still floating around in your bloodstream. Now, the nutrients from that last meal are no longer being stored away but are kept available for immediate use.

But that still may not be enough energy. Where is the extra energy going to come from? There is no time to eat and digest more forage. In fact, you lost your appetite and digestion came to a screeching halt the instant you were alarmed. Your only option is to tap into stored sources of energy. Cortisol, along with several other hormones, including glucagon, spring into action and reverse the metabolic steps that were followed when you were storing nutrients away: protein is broken down into amino acids; triglycerides are degraded to fatty acids, glycerol and ketone bodies; and glycogen is converted to glucose. And all of the products are spewed into the bloodstream as energy sources.

But, amino acids are not good energy sources in themselves. So, through a process called gluconeogenesis, the liver converts certain ones into glucose, a far better source of energy. Now there is lots of fuel available.

But you are also going to need extra oxygen. So you take in a bunch of it with a sudden gasp. Then you breath deeper and faster and your bronchial tubes dilate to increase oxygen intake.

At the same time your heart beats at a higher rate and with a greater force to distribute the extra fuel and oxygen to your tissues and organs. But the resources aren't wasted on processes that aren't vital to surviving the moment. Through changes in vascular dilation and constriction and other complex processes, the fuel and oxygen is shunted to precisely those tissues and organs that need it most, like the muscles used for running, and away from those that are not as critical for surviving the moment, like the digestive tract. And Voilà! You gallop away as fast as you can to avoid the noisy monster in the sky behind you.

But what if you get hurt during the commotion. Well, your body prepares for that too: Blood vessels in your skin constrict to minimize bleeding. Levels of the clotting factor, fibrinogen, rise in the blood to accelerate blood clotting. Many aspects of your immune system are enhanced to help protect you against infection. In fact, at the instant you were alarmed, white blood cells, the first line of defense against infection, were strategically dispatched to places that are most susceptible to wounding, like the skin. When they got to those places, they

attached to nearby tissues and organs and waited for a call to action. At the same time, the potent pain killer,  $\beta$ -endorphin, a morphine-like substance, was released in your brain so you can continue to flee pain free under the worst circumstances.

## **THE FIGHT-OR-FLIGHT REACTION**

The intricate physiological events described above are part of what is known as the fight-or-flight reaction—bodily changes that enhance a horse’s chances of surviving a frightening situation by increasing his/her alertness, capacity for physical exertion and ability to withstand injury.

It all begins in a primitive part of the brain called the hypothalamus. The hypothalamus collects information about the state of the environment and the state of the body, integrates it and then signals for appropriate changes to physiology and behavior. When a horse is faced with a threatening or frightening situation, it is the hypothalamus that marshals the forces for action.

The first action of the hypothalamus is to activate the sympathetic nervous system—a subdivision of the autonomic nervous system. The sympathetic nervous system originates in the spinal cord and sends branches out to nearly every organ in the body. It also sends nerve fibers to every blood vessel and sweat gland. The sympathetic nervous system does many other things as well to

help horses deal with threatening/frightening situations. Remember, it innervates nearly every organ in the body.

The hypothalamus also activates a direct neural link to the inner core of the adrenal glands which are perched on top of the kidneys. The adrenal glands respond by pumping out the first of two vital fight or flight hormones, epinephrine, into the bloodstream. I'm sure you have heard of epinephrine; maybe you know it as adrenalin—epinephrine and adrenalin are different words for the same hormone. Unusual feats of strength and bravery in real life, sports and movies are commonly attributed to the release of adrenalin under emotional or emergency conditions.

Next, the hypothalamus signals the adrenal glands to secrete another type of hormone. This time the signal is indirect. It's relayed through the pituitary gland which lays at the base of the brain. The hypothalamus signals the pituitary gland by secreting a hormone called corticotropin releasing hormone, CRH to keep it simple, into a private network of tiny blood vessels called the hypophyseal portal system which links the hypothalamus with the pituitary gland. The pituitary gland responds by releasing another hormone, adrenocorticotrophic hormone, ACTH for short. ACTH, in turn, travels through the bloodstream to the adrenal glands where it induces the synthesis and release of cortisol. Among it's many functions cortisol helps to regulate the metabolism of carbohydrates, like **glucose**—it belongs to a class of hormones called **glucocorticoids**. Glucocorticoids are



**catabolic** steroids. In contrast to the **anabolic** steroids that enhance muscle growth and get major league baseball players in all sorts of trouble, glucocorticoids stimulate complex materials, like the proteins that make up muscles, to breakdown.

Cortisol is synthesized in and secreted from the outer shell of the adrenal glands. It influences the functioning of virtually every tissue and organ in the body and it affects an amazingly large number of different bodily processes. It is crucial for adaptation and survival. A chronic cortisol insufficiency results in Addison's Disease and, in turn, death, if it goes untreated. But too much of this powerful hormone isn't good either. In fact, many of the harmful consequences of stress are due to overexposure to cortisol.

## **THE RUB**

You might be thinking, "So, what's the problem? All of the physiological changes described above that are activated by a chase are normal ... beneficial. They help horses deal with physical threats and emergencies. They maximize his/her capacity to run and ability to withstand and cope with injury. In essence, they optimize a horse's chances of surviving a gather." All true. But, here's the rub.

The fight-or-flight reaction is about surviving the moment—not efficiency, not growth, not repair. Resources are shunted to organs and processes that are critical for surviving the moment. Long-term projects, like reproduction, are put

on hold when the fight-or-flight reaction is active. Expending resources to sustain and maintain a fetus, for example, just isn't physio-logical if it seems like you are about to die. It isn't surprising that the BLM reported 20 – 30 mares "miscarried" in association with the Calico Complex Gather. In addition to the miscarriages, one wonders whether and how many fetuses were resorbed by mares?

You might also recall what I said above about digestion. It came to a screeching halt as soon as the horse was alarmed. Perfect conditions for the development of intestinal compactions and colic—the #1 killer of horses. Again, it is no surprise the BLM reported colics associated with the Calico Complex Gather.

The same can be said for the horses reported to be "Not Adapting to Hay." Of course not! Let's be honest. It has nothing at all to do with the hay and probably little to do with the change of diet. It's about being scared out of their wits and the sympathetic tone shutting down processes related to appetite and digestion.

But these overt consequences are just the tip of the iceberg. Let me explain. Here's the thing, psychological stress regardless of the source also activates the fight-or-flight reaction. The body doesn't distinguish between a fight-or-flight situation, like being chased by a helicopter, and a psychological stressor. That means the bad news for wild horses only begins with the gather.

Once in captivity, there are all sorts of unnatural stressors to deal with ... things that go against some of the most basic instincts of horses. And they cause the same bodily changes as the “chase.”

There’s the confinement itself. Imagine how stressful confinement in an unfamiliar place must be to a species who depends on running for survival and who instinctively avoids places where they might get trapped.

On top of that, there’s the social unrest from confinement in close quarters with unfamiliar horses. And don’t overlook the importance of such things as the loss of or separation from lifelong herd mates ... companions and family. It is egocentric to think such things are only important to our species.

Then, there’s the boredom that goes along with captivity. Again, it causes the same bodily changes as the “chase.” But, physiological changes that were designed to maximize physical capabilities do little to help horses deal with the boredom and inactivity that goes along with confinement in paddocks.

A loss of control also goes along with captivity. Freedom of choice is merely something to dream about. I know, some of you are skeptical about this one, right? Consider this. Horses attain social order within a herd by forming a dominance hierarchy. But they don’t all go to the town hall and vote to decide the rank order; it’s the outcome of agonistic encounters—contests to see who can intimidate or out fight who. Have you ever wondered why horses fight to attain social order? It doesn’t make sense. Think about it. It’s like making a house

messy so you can put it back in order. Why not leave well enough alone ... everyone just mind their own business. Well, the truth is, a horse doesn't strive to outrank another horse because he or she anticipates that it will lead to social order. That's not it; social order is merely a byproduct. Horses strive for a high rank because high ranking horses go where they want to go and do what they want to do—**Freedom of Choice**—to horses, it's worth fighting for.

The ability to control one's own movement and activity is as important to horses as it is to us. The loss of control, on the other hand, is a powerful psychological stressor. In fact, it is a key factor in determining whether situations, events and circumstances are stressful and mentally or physically damaging.

Along the way, there are also transfers from one paddock and group to another, and transportation in trailers from here to there for one reason or another. And so on and so on. To these wild horses, the sources of stress must seem endless. Everything is foreign ... truly disturbing for a species that depends on familiarity for safety and comfort.

So, the gather is just the beginning. And, I've only touch on some of the more obvious stressors gathered horses subsequently face. For example, I haven't mentioned captivity can even compromise a wild horse's ability to deal with natural stressors, like severe weather conditions, biting insects, and so on. I don't think it is too far out of line to say nearly everything about captivity is probably

stressful to one degree or another to wild horses, especially when it begins with the traumatic experience of a gather.

It is extremely detrimental to their long-term health and soundness. It's no different than what stress does to us. Remember, 90% of all of our visits to primary care physicians are now believed to be stress-related in one way or another.

### **So What Goes Wrong?**

The fight-or-flight reaction/ stress response is about surviving the moment. It prepares the individual for intense physical action. To fuel this revved-up mode the body goes into metabolic overdrive, energy stores are mobilized & nutrients are dumped into the bloodstream. Activate the stress response too often or for too long and a horse is headed for trouble.

At the most basic level, it's just inefficient. Every time the stress response is turned on it's costly. It takes a great deal of energy to drive the fight or flight reaction. Consequently, the horse loses a chunk of potential energy that could be used for normal activities and for maintaining and repairing his body. In effect, a horse gets penalized each time the stress response is activated. Activate it too often or for too long and he's got problems. He ends up expending so much energy that, as a first consequence, he gets lethargic ... no energy or enthusiasm.

At the same time muscles begin to very slowly waste away. You see, one of the ways the body makes more energy available for fight or flight is to break protein down into amino acids. Then the liver converts them to glucose, the body's main source of energy. Well, muscles are chock-full of protein. If stress repeatedly triggers protein breakdown into amino acids, it's called catabolism, muscles never get a chance to recover and rebuild properly. Catabolism can also weaken connective tissues and joints, thin skin and impair wound healing. It may even contribute to the development of laminitis and founder by weakening hoof laminae.

Too much stress isn't good for bones either. Stress wreaks havoc with the trafficking of calcium, biasing bone toward disintegration, rather than growth and repair. Activate the stress response too often or for too long and it interferes with bone growth, increases susceptibility to bone injury, slows recovery from bone damage and accelerates osteoporosis.

Stress is also a major contributor toward obesity and insulin resistance. You're probably wondering how that fits with my assertion that appetite and digestion come to a screeching halt when the stress response is activated, right? Well, stress also increases appetite. It's all in the timing. After the termination of a stressful period, cortisol levels remain elevated for a while. During this post-stress period cortisol increases appetite to help the body recuperate. More

importantly for horses, cortisol also promotes fat deposition during the post-stress period.

Now, this is even worse than you might think. The bodily changes that occur when the stress response/fight-or-flight reaction is activated are designed to support sudden, intense physical action. Tons of nutrients are dumped into the bloodstream to fuel it. But, often physical action isn't an appropriate response to the unnatural stressors gathered horses face. Consequently, much of the fuel isn't used. Then, when the stress response deactivates, the leftovers have to go somewhere. That somewhere is fat cells. It's not the fat you see at the crest of the neck, behind the shoulder blades or at the tail head. It's intra-abdominal fat. Intra-abdominal fat surrounds internal tissues and organs like the heart, liver and kidneys. It's the harmful fat that causes **all** of the problems associated with obesity.

There's more. To help fuel the fight-or-flight reaction muscle is broken down into amino acids that are then converted to glucose, the body's main source of energy, by the liver. So, how do you think some of that glucose that once was muscle ends up? Right, as fat.

The situation gets even more grim if the horse is on a high calorie diet , like alfalfa hay, because that ends up in fat cells too during the post-stress period. And maybe the horse is inactive for much of the day, just standing around in a paddock and using very little fuel—all the more for those bulging fat cells. Add

frequent periods of stress and over time some intra-abdominal fat cells expand to a point where they burst or leak. The cellular debris then sparks an inflammatory response. This is **the** crucial event in the etiology of insulin resistance ... a major cause of chronic laminitis and founder.

Stress can also affect health through immunity. Stressors of all types, including psychological, boost immune function for 30 minutes or so. But with major stressors with longer durations immunity plummets to 40 to 70% below normal. Bad news for the horse. His/her ability to fight off and recover from diseases is compromised. It also compromises the horse's ability to identify and destroy tumors and parasites.

Stress can also affect gene activity. There are two general ways. First, when the stress hormone cortisol enters a cell it binds to specialized proteins called receptors. Together cortisol and the receptor then alter the activity of certain genes within the cell. Cortisol affects a huge number of bodily processes this way.

For example, the hoof wall grows throughout life. Regeneration occurs at the coronary band where hoof germinal cells, epidermal cells, produce daughter cells called keratinocytes or keratin producing cells, which mature and keratinize ... form fibers of keratin filaments inside them. It's what makes the hoof wall hard. When cortisol enters an epidermal cell it turns off the process of keratinization and the integrity of the hoof is compromised. The body is very prudent when the



fight or flight reaction is activated. As I've said, it doesn't waste energy on long term projects like growing hoof.

Stress can also influence gene activity through newly discovered epigenetic mechanisms — changes to the micro-environment surrounding a gene. These changes can either increase or decrease the activity of a gene. Such changes can have dramatic effects on how an animal functions, behaves and even looks. And it can last a lifetime. Epigenetic modifications may even be inheritable. That means things we do to and with today's generation of horses may affect future generations as well.

### **Just My Opinion**

I'm 63 years old. There was a time when I was very proud of my generation. During the years of the Viet Nam war, we took a stand ... spoke out against the war, civil injustices and so on. We protested, marched and preached peace, love and kindness. We condemned apathy.

It's now thirty five plus years later. Perhaps we can step forward again and leave our mark on history. We started out passionate about making things right, why not make some noise on the way out too. What our government is doing to the wild horses of the western US and the way it is being done is an atrocity. It is an injustices against nature. Even the horses left behind or turned back out suffer from the social disorder gathers cause.

The U.S. government now estimates that 33,000 horses are left on the range, while 36,000 are warehoused in Midwestern holding facilities. By contrast, some two million cattle still graze our public lands.

We have had people from 15 different countries come to our Liberated Horsemanship clinics here in Warrenton, MO. We also traveled to Italy and British Columbia for clinics in 2009. I can't tell you how many times I have heard people from other countries ask something like, "What's wrong with people who allow an icon of their country to be unnecessarily brutalized and exterminated by their government?" It's an embarrassment and I don't have a good answer. Apathy and self-indulgence maybe. But I believe it is more likely just too few people are aware of what is being done and its short and long-term consequences ... for the horses themselves and for our country. Mahatma Ghandi once said, "A nation's greatness is measured by how it treats its weakest members." For me, and many others that includes animals.