



CCDO\_PineNutHorses, BLM\_NV &lt;blm\_nv\_ccdo\_pinenuthorses@blm.gov&gt;

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## Herd

1 message

Mon, Oct 12, 2015 at 9:56 AM

[REDACTED]  
To: pinenuthorses@blm.gov

Please stop the insanity of capturing wild animals and then penning them indefinitely WITHOUT ANY SHELTER. Share the grazing with wild animals first. Retire ranchers grazing leases and allow them to run their business on their own land, not MINE AND YOURS. This FELONY ABUSE of wild horses MUST STOP IMMEDIATELY. Where is your brain, heart and soul? There is no valid reasoning for this to continue. Shame on you !!! The wild horses are not the problem!!!

[REDACTED]

Sent from my Verizon Wireless 4G LTE smartphone



CCDO\_PineNutHorses, BLM\_NV <blm\_nv\_ccdo\_pinenuthorses@blm.gov>

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## Comments regarding Pine Nut HMA Management

1 message

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Mon, Sep 21, 2015 at 6:30 PM

[REDACTED]  
To: "pinenuthorses@blm.gov" <pinenuthorses@blm.gov>

Thank you for the opportunity to provide comments. I spend quite a bit of time recreationally in the Pine Nut Range and have for over 30 years. I have observed all the facts presented in the report and agree wholeheartedly that due to the fragile nature of the Pine Nut Range horse numbers need to be dramatically reduced. I consider it torture to leave horses on the range in their present numbers. They are causing environmental damage on a scale never seen in recent history. I have relied on horses for my daily work at times and hold horses in high regard but the environment in the Pine Nut Mountains cannot sustain the level of grazing that is presently occurring. Please remove the excess horses and reduce the horse herd to an ecologically sustainable level near what was previously determined (AML).

Again, thank you for attempting to bring balance to the grazing capacity of the Pine Nut Mountains.

Sent from my iPad



CCDO\_PineNutHorses, BLM\_NV &lt;blm\_nv\_ccdo\_pinenuthorses@blm.gov&gt;

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## Wild Horses

1 message

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Wed, Sep 16, 2015 at 3:27 PM

To: pinenuthorses@blm.gov, [REDACTED]

Dear BLM,

I think you need to do something to keep the wild horses out of our residential neighborhoods.

These horses destroy our landscaping causing us financial loss.

They present a health hazard to residents by defecating in the street and on our lawns. This manure stays in the street and on many lawns for months.

Finally, these wild horses present a physical hazard to our children, especially small children. Children do not realize the potential danger. The slightest contact with a child can cause tremendous harm.

I urge you to take action to contain these wild horses to BLM land where they belong.

Sincerely,

[REDACTED]



CCDO\_PineNutHorses, BLM\_NV &lt;blm\_nv\_ccdo\_pinenuthorses@blm.gov&gt;

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## Pine Nut Roundup

1 message

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[REDACTED]

To: "pinenuthorses@blm.gov" <pinenuthorses@blm.gov>

Good Afternoon,

This email is to protest the upcoming planned roundup of the Pine Nut Wild Horses. The holding pens are already filled to capacity and we now have birth control methods by darting that will keep the horses from reproducing for two years. This is a much better solution.

There are plenty of trained advocates that are willing and able to do the darting. Please give us a chance to make this method work! It has a proven track record in the areas that have been using it. Why continue to do round ups, especially by the inhumane method of helicopter?

I live in Dayton in the ranches and we have been watching and enjoying these horses for years. Please do not round up our horses. They are a major part of the beauty of our area.

If you have questions regarding the darting, please contact [REDACTED]

Thank you for your consideration.

[REDACTED]



CCDO\_PineNutHorses, BLM\_NV &lt;blm\_nv\_ccdo\_pinenuthorses@blm.gov&gt;

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**REALLY?**

1 message

Mon, Oct 12, 2015 at 11:58 AM

[REDACTED]

To: "pinenuthorses@blm.gov" <pinenuthorses@blm.gov>

You are getting so much negative scrutiny and I for one would like to see the responsibility of managing horses taken away completely from the BLM corrupt hands. I am working on this believe me. I am so grossed out by the unchecked corruption of all the employees selling the horses to Mexico and Canada..all you do it wipe out the horses like the government did to the Indians 150 years ago. No difference and your never going to stop and never going to feel a thing as you take part in their murder and genocide. God have mercy on the animals but not on the BLM.

I am busy busy busy contacting anyone I can to speak out against the BLM and see if I can stop this that has been happening since the 1971 Nixon bill that gave you permission to murder without anyone being able to stop this big black spider called BLM.

There is always a way.

[REDACTED]

So my public input which you do not care about except as a ruse...is that you should stop doing this.  
Get a job any other place.



CCDO\_PineNutHorses, BLM\_NV &lt;blm\_nv\_ccdo\_pinenuthorses@blm.gov&gt;

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**wild horses**

1 message

Thu, Sep 24, 2015 at 3:02 PM

[REDACTED]  
To: pinenuthorses@blm.gov

Please leave the horses alone and let them live in peace. They should not have to endure the cruel gathers and treatment they are subjected to. They are supposed to be protected, but somewhere along the way that has been forgotten or shoved aside to please the welfare ranchers and special interest! They have as much right to live on the land as any other specie of animal. They are systematically being rounded up and "managed" into extinction all over the west. This has got to stop or we will lose our beautiful mustangs and burros forever. And that is exactly the goal of some people and agencies. Some want to eliminate them through sterilization and pzp, and others through slaughter. This is wrong on so many levels! The horses and burros help the land by keeping it from getting overgrown thus keeping the risk of wild-fires low. They also help reseed the land with their poop. They do a lot of good. Please leave them alone to live freely. thank you, [REDACTED]



CCDO\_PineNutHorses, BLM\_NV <blm\_nv\_ccdo\_pinenuthorses@blm.gov>

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## Wild horses

1 message

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To: pinenuthorses@blm.gov

Tue, Oct 20, 2015 at 11:07 AM

I am requesting you not round up any more wild horses. If they need water, let's provide the water. For the horses currently in holding BLM holding facilities, they need more water, feed, and Shelter. Please consider the lives of the horses. Not what's best for people, but whats best for the horses.  
Thank you

Sent from my Verizon Wireless 4G LTE smartphone

-BLM-

### **BLM skewed data**

It is evident that the BLM uses skewed data when it comes to wild horse management. The agenda seems to favor everything above that of the wild horses.

#### BLM WEIGHS WILD HORSE IMPACT MUCH MORE HEAVILY THAN CATTLE

Agency Sage Grouse Review Puts Thumb on Scale to Magnify Wild Horse and Burro Effects

Posted on Sep 16, 2014 | Tags: BLM, Grazing Reform

Washington, DC — The method used by the U.S. Bureau of Land Management to assess range conditions is seriously skewed toward minimizing impacts from domestic livestock and magnifying those from wild horses and burros, according to an appraisal by Public Employees for Environmental Responsibility (PEER). As a result, the BLM's approach to range management targets scattered wild horses and burros while ignoring far more numerous cattle.

The agency's assessment is part of a 2013 report on factors influencing conservation of the Greater Sage-Grouse, a ground-dwelling bird whose numbers have declined as much as 90% across the West and which is under consideration for protection under the Endangered Species Act. That report concludes that twice the area of sage grouse habitat is negatively impacted by wild horses and burros than the area negatively impacted by livestock. A PEER appraisal of the methodology found –

BLM calculates the "area of influence" of wild horses and burros on sage grouse habitat based merely on their presence within Herd Management Areas in sage grouse habitat, while it considers livestock impact to have occurred only when livestock grazing allotments fail the agency's Land Health Status (LHS) standard for wildlife; If the agency used the same approach for calculating the area of influence of livestock within BLM grazing allotments on sage grouse habitat as it did for wild horses and burros, the area of influence for livestock would be roughly 14 times that given in the report and more than six times that of wild horses and burros; and Within BLM's own grazing allotment LHS database records, livestock grazing is cited as a cause of failure to achieve a land health standard 30 times more often than are wild horses and burros.

"At BLM apparently not all hooves are created equal," said PEER's Advocacy Director Kirsten Stade, noting that the LHS evaluations cover more than 20,000 grazing allotments and examine whether a grazing allotment meets the agency's standards for rangeland health with respect to several vegetation and habitat conditions. "This helps explain why wild horses are regularly removed from the range but livestock numbers are rarely reduced."

The BLM assessment influences not only the agency's range management decisions but also will figure into the Fish and Wildlife Service's decision on whether to list the sage grouse under the Endangered Species Act.

Last year in response to a complaint by PEER filed under agency Scientific Integrity policy, BLM claimed that it does not have enough "reliable data" about commercial livestock impacts to include them in current assessments of environmental conditions on Western range lands. Yet, BLM has more data on the grazing that it authorizes through permits than virtually every other topic.

"When it comes to cattle, BLM plays with a marked deck," Stade added, pointing out the PEER analysis that will become part of PEER's new grazing reform web center set to launch in several weeks. "We are posting BLM's own data in a way that allows apples-to-apples comparisons while displaying satellite imagery that depicts the true livestock landscape impacts."

<http://www.peer.org/news/news-releases/2014/09/16/blm-weighs-wild-horse-impact-much-more-heavily-than-cattle/>

The BLM protects and manages wild horses and burros under the authority of the Wild Free-Roaming Horses and Burros Act of 1971 to ensure that healthy herds thrive on healthy rangelands. <http://www.blm.gov/wo/st/en/prog/whbprogram.html>

In order to keep with the intent of the Wild Free-Roaming Horses and Burros Act of 1971, herds must be managed in numbers that will insure herd viability. The Act was passed by Congress into law, it's not merely a suggestion to be altered to fit a special interest agenda. Reducing the Pine Nut herd through permanent removal of horses and returning some that have been treated with birth control will make the Pine Nut herd extinct in the near future which goes against the Act.

### **Wild Horses**

According to equine geneticist Dr. Gus Cothran (Texas A&M), whom BLM hires to do genetic analysis on some herds, wild horse & burro herds need 120-150 breeding age adults to remain viable.

However, according to a March 2014 BLM "Herd Area and Herd Management Area Statistics" report, the BLM has allowed only extremely low numbers of wild horses and burros on the HMAs, and certainly not viable herds.

A few samples of low "herd" numbers of wild horses and burros on Herd Management Areas in California: 15-25 horses, 10-12 horses, 26-35 horses, 24-29 horses, 10-25 horses, 14-17 horses, 16-25 horses, 9-11 burros. New Mexico only has 2 Herd Management Areas left. One allows 40-60 wild horses and the other 18-23 wild horses. This means that in the entire state of New Mexico, the BLM allows only 58-83 wild horses on Herd Management Areas.

Only 45 out of BLM's 179 Herd Management Areas (about 25%) have viable herd numbers as the "Appropriate Management Level (AML), and even that 25% is questionable because it includes foals (that are NOT breeding age adults), mares given the fertility drug PZP, gelded stallions and herds with sex ratios skewed by the BLM.

<http://wildhorsefreedomfederation.org/wild-horse-and-burro-issues/wild-horses/>

The draft lists the "nuisance" horses that were removed as if this gives an excuse to remove horses from the HMA. How does the removal of "nuisance" horses on private property justify removing horses from the HMA? How was it determined that the supposed problems caused by supposed "nuisance" horses was actually caused by horses? Were investigations done to determine if in fact wild horses were a problem? Where is the information to substantiate the claims that wild horses were a problem? Is the same thing done when public lands cattle become a nuisance or is this just another example of a double standard in which the wild horses once again wind up on the short end? It is known that Nevada is a 'fence out' state when it comes to cattle. The federal lands cattle ranchers are under no legal obligation to insure that their cattle are not causing problems on the land of private citizens. The bias against the horses and for the public lands ranchers is getting old.

### **Wild Horse Population Growth:**

The BLM greatly inflates the rate at which wild horse herds if left alone will grow. Tampering with nature through roundups and birth control will alter the course of nature's way. There is no scientific proof that the Pine Nut herd is overpopulated. Or that it is destroying the land. That is obvious since cattle will be put in place of removed horses. The cattle will outnumber by large amounts the number of wild horses that are there now.

An Update Seen Through the Eyes of One Biologist

Posted: 9:48 am, January 18, 2015 by Posted by Habitat for Horses

Robert Bauer is a biologist whose works have been published before on Habitat for Horses. Today's article is on the myth of overpopulation of wild horses. He, and other prominent biologists, claim that the actual numbers of wild horses is so low that the use PZP contraceptives will greatly increase the likelihood of the total destruction of the wild horses of the West. ~ HfH

[REDACTED]

[REDACTED]

heart is, and has been, to emphasize how nature through its own mechanisms will and should

be allowed, to maintain natural ecological balance, without human intervention. It does this through physiological differences, found within each species inside any given ecosystem. Each of those differences, contribute as a vital factor in a broad ecological equation. It also accomplishes this through the numbers or density of any given species of animal or plant within that system, in conjunction with competitive species, and the carrying capacity of the land. There is a misconception, even amongst advocates of the wild horses, that the only things that are necessary to check wild equine population growth is the presence of its predators and or natural environmental factors. Although, natural predation is important and environmental impacts, density dependent inhibition plays an important role also. In this scenario, what that means is that the numbers or density of wild equine, versus competing ruminants, such as the pronghorn, each will fluctuate in response to the other based upon the carrying capacity of the land, yet always in perfect balance. In essence, the pronghorn need the presence of wild horses and burros, just as much as the wild horses need the pronghorn. Each population will have the effect of keeping the numbers of another competing population at levels that are ideal for the carrying capacity of the land.

Also, what must be understood is that nature is dynamic, and not static. This infers that it continuously fluctuates and adjusts, through its own negative and positive feedback loops, from the molecular, all the way up the scale of organisms. Because it is dynamic and not static means that its functions cannot be confined to finite thinking, and fixed statistics but must be allowed, through its own mechanisms to maintain itself, hands off, so to speak. In other words, nature cannot be limited at any given time to a given number, or average of numbers, that mankind deems appropriate. An example of this is the Bureau of Land Management's, "Appropriate Management Level", of wild horses in their legally designated lands. Mankind's sole responsibility has to be focused on keeping the restrictions off of nature, so that nature can be itself, and not an offspring of man's seemingly brilliance. The moment mankind seeks to alter nature according to a fixed number, or an average of numbers, is the moment that nature and balance itself begins to break down. At first it occurs little by little, yet as artificial alteration persists, the breakdowns become greater and greater. This has occurred in every branch of nature, where mankind has endeavored to manage natural balance, assuming nature to be static and not dynamic.

With these thoughts in mind as an introduction, the tenacious destruction of a vital component of nature's beauty and balance continues to be removed from the rangelands of the west, even the wild horses and wild burros, by the Bureau of Land Management. It has turned a blind side to the solid science that opposes the idea that these creatures are a detriment to the ecosystems they exist in. Just as much, it is opposed so to the myth that there is over population of our wild equine. The ludicrous concept of the "Appropriate Management Level", of wild horses in any area out west is a lie concocted by the bureau. This is based upon how much forage that the BLM is going to allow the mustangs, as opposed to how much they would actually consume. This is opposed to cattle and other competing ruminants in these same areas, which are allocated by this same bureau, the major percentage of the forage. From this comes the propaganda that there exists overpopulation of wild Equids, and the subsequent removal of them in mass, from their legally designated lands. This, the bureau does regardless of the fact that our wild horses and burros, by law, are to be considered as the principle species in a multi use situation. This is all accomplished to accommodate the Bureau of Land Management's leasing of those same lands for cattle and cattle ranchers, for energy interests, and big horn sheep hunters.

In a desperate attempt to curb the devastating roundups many advocates are succumbing to the pressure of the BLM to utilize the PZP contraceptive on our wild horses. This thinking may be based on a heartfelt love for our wild ones, but also with the idea that a compromise in this area will at least preserve them in the wild. There are those that believe that the roundups have already decreased because of this compromise to use the contraceptive. As a biologist I would ask all to consider some truths concerning this issue.

First, the numbers of the wild horses remaining in the wild are not the 20,000 to 30,000 that many assert are out there. The numbers of our wild ones are not even in the tens of thousands anymore. This has its basis upon the liberal use of PZP, the thousands of wild horses and burros already removed, and the adjustment of sex ratios. Added to this, are mortality rates in the wild that range between 19% to 75% annually, both first year and adult. The reasons that the roundups have decreased is simple because the wild horses remaining in the wild are so few, they can't be found. This is despite the continued propaganda that there is still overpopulation.

Secondly, with continued use of the PZP contraceptive, population growth will be driven down even further, in as much as reproduction will continue to decrease dramatically because of PZP, but mortality percentages will remain the same. In essence, mortality will completely overwhelm reproduction and accelerate the population decline. Added to this will be the increased chances of the loss of genetic viability. All of this the BLM is fully

aware of, however not unlike our Native American ancestors, the U.S. government promises a compromise but are taking a 100 miles for every mile we give them.

The roundups will continue, even though the wild horses are fewer in number. There doesn't have to be many roundups, however, to decimate our wild horse herds with what few numbers are out there, especially with an even more rapid decline in population growth and the threat of inbreeding. The proponents of PZP, whether they love our wild horses or not, will be aiding the BLM in driving them to extinction. The only answer is to continue fighting for the truth, and to allow nature to remain untouched. The wild horses and burros will continue as the poetically beautiful, yet vital components of ecological balance if, and only if, we allow nature alone, through its own dynamic methods to dictate the numbers in the wild that are to exist, at any given time.

Acknowledgments: Craig Downer, Wildlife Ecologist

<http://www.habitatforhorses.org/an-update-seen-through-the-eyes-of-one-biologist/>

BLM & some "nuisance" ranchers deceive American Taxpayers

In a Nevada Society of Rangeland Management newsletter, it states: "I requested a response from BLM due to the Section's concerns with WH&B. I received this from Alan Shepherd, Nevada WH&B State Program Lead / Joan Guilfoyle, BLM Division Chief for WH&B Program, dated May 5, 2014...

How will the potential gathers be prioritized?

- BLM has tasked a small group of managers and field staff to prioritize any potential removals within the program based on court orders, private property concerns, and public health and safety concerns. This team will also be considering concerns from the on-going drought across the West that has led to declining animal and rangeland conditions."

It states in the Code of Federal Regulations,"§4720.2-1 Removal of strayed animals from private lands

Upon written request from the private landowner to any representative of the Bureau of Land Management, the authorized officer shall remove stray wild horses and burros from private lands as soon as practicable...The request shall indicate the numbers of wild horses or burros, the date(s) the animals were on the land, legal description of the private land, and any special conditions that should be considered in the gathering plan."

Note that this regulation only authorizes the BLM to remove wild horses from private lands, NOT to then remove the wild horses from an HMA forever.

"In Fallini v. Hodel, the court ruled that §4 of the Wild Free-Roaming Horses and Burros Act does not impose a duty on the Bureau of Land Management (BLM) to prevent wild horses from straying onto private lands. The court rules that §4 of the Act does not impose a ministerial duty on BLM to prevent wild horses from straying onto private lands. The plain language of the section creates no express duty and the court finds no implied duty. Congress clearly anticipated in §4 the possibility of wild horses straying onto private land, but it rejected the use of intensive management techniques."

Since removing "nuisance" horses that are on private property is now becoming so widely talked about, and since the BLM is facilitating this, it now seems that this is an "intensive management technique."

Even if the BLM removes wild horses from a private property, on what does the BLM assume it has authorization to completely remove those wild horses from the HMA?

When the BLM cites a "need" to roundup wild horses because they wandered onto private property, or are somehow a danger to the public, or because of drought, the BLM is grasping at straws for reasons to roundup wild horses and remove them to cater to their Most Special Interest.

<http://ppjg.me/2014/10/27/blm-some-nuisance-ranchers-deceive-american-taxpayers/>

### **Adverse Effect**

There is a law regarding the reverse effect of removing property from historic areas. The Pine Nut area is

historic as are the Pine Nut wild horses. Removing the horses would alter the landscape in a negative way since the horses are one of the draws to the area for tourists. Nobody goes to the wilderness to see cattle.

#### §800.5 Assessment of adverse effects.

(1) Criteria of adverse effect. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

(2) Examples of adverse effects. Adverse effects on historic properties include, but are not limited to:

(i) Physical destruction of or damage to all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

<http://www.ecfr.gov/cgi-bin/text-idx?rgn=div8&node=36%3A3.0.6.1.1.2.1.3>

#### **In Conclusion:**

As a tax paying, American citizen I find what is being done to America's wild horses by the very agencies that are supposed to be protecting them appalling. The agenda to zero-out the wild horses in America is clear to anyone who is paying attention. One herd after another across our wild horse states are being targeted. As you make the case to remove wild horses for the sake of the land, more and more cattle are being grazed in the very same areas where the horses were removed.

The BLM's mission is, "to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations." But that is not what is happening. It's all about the greed of special interest groups such as the public lands ranchers.

Neither the federal government nor the agencies within, own our public lands. They belong to all Americans. They are not private cattle ranches and in fact wild horses and burros are legally DESIGNATED on the Herd Management Areas and livestock are only PERMITTED. I urge you to begin to turn things around before there are no wild horses left. And if zeroing out all the herds is your intent, then you are not doing your job by upholding the Wild Free-Roaming Horses and Burros Act of 1971 and perhaps the BLM is nothing more than a nuisance that needs to be removed until it can be put on the right track in regards to wild horse and land management.



CCDO\_PineNutHorses, BLM\_NV &lt;blm\_nv\_ccdo\_pinenuthorses@blm.gov&gt;

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**Fwd: I have questions**

1 message

Wed, Oct 14, 2015 at 9:15 AM

To: BLM\_NV CCDO\_PineNutHorses &lt;pinenuthorses@blm.gov&gt;

----- Forwarded message -----

From: **CCDOWebmail, BLM\_NV** <blm\_nv\_ccdowebmail@blm.gov>

Date: Tue, Oct 13, 2015 at 12:06 PM

Subject: Fwd: I have questions

To: [REDACTED]

FYI -

----- Forwarded message -----

Date: Sat, Oct 10, 2015 at 7:37 AM

Subject: I have questions

To: [ccfoweb@blm.gov](mailto:ccfoweb@blm.gov)

BLM

Why do u guys have to roundup all the wild horses and put them in pins when they are not hurting nothing. All u government ppl won't is money for land that don't belong to u. It belong to the wild horses. What u guys do is every wrong and u guys now it. I think we the ppl should do it to u. But if we did that we would go to jail for that. Now if u dumb fucken ppl would just pull ur head out of ur ass and help the wild horses and not won't the money so bad u would not have sooooo many ppl mad at u. 1) wild horses where here before u guys came around. 2) the Indians ran with the wild horses. 3) all u guys are doing is sending them to slaughter. 4) u are making us the ppl really upset.

Have a good day



CCDO\_PineNutHorses, BLM\_NV <blm\_nv\_ccdo\_pinenuthorses@blm.gov>

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## Pine Nut Horses

1 message

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[REDACTED]  
To: pinenuthorses@blm.gov

Wed, Sep 23, 2015 at 1:57 PM

Why do you bastards pretend to care about the wild horses? You extend comment periods and yet you have NEVER listened to the people! All your "comment periods" are a scam! I wish I was in a position to fire every last one of you.

[REDACTED]  
[REDACTED]



CCDO\_PineNutHorses, BLM\_NV <blm\_nv\_ccdo\_pinenuthorses@blm.gov>

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## Fwd: Do Not Remove the Pine Nut Horses

1 message

Wed, Oct 14, 2015 at 9:13 AM

To: BLM\_NV CCDO\_PineNutHorses <pinenuthorses@blm.gov>

----- Forwarded message -----

From: **CCDOWebmail, BLM\_NV** <blm\_nv\_ccdowebmail@blm.gov>

Date: Tue, Oct 13, 2015 at 12:08 PM

Subject: Fwd: Do Not Remove the Pine Nut Horses

To: [REDACTED]

----- Forwarded message -----

From: [REDACTED]

Date: Fri, Oct 9, 2015 at 6:39 PM

Subject: Do Not Remove the Pine Nut Horses

To: [ccfoweb@blm.gov](mailto:ccfoweb@blm.gov)

Wild horses are part of America's heritage. These horses belong where they are. Please do not rely on outdated and incorrect information to support your decisions. The horses deserve to be there just as much as any other wildlife.

Please do not remove the Pine Nut Horses. Spend your time enforcing laws to stop people from feeding them. Isn't that a better way to preserve our heritage?

Warmest Regards,

[REDACTED]



CCDO\_PineNutHorses, BLM\_NV &lt;blm\_nv\_ccdo\_pinenuthorses@blm.gov&gt;

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**wild horses**

1 message

Thu, Sep 24, 2015 at 8:56 AM

[REDACTED]  
To: pinenuthorses@blm.gov

I am submitting this to express my opinion re the continued harrassment and roundups of the American TAX PAYERS WILD HORSE POPULATION across the western states. It is unacceptable to ignore the federal laws protecting this national treasure and unconscienable to then allow these animals to be sold to the highest bidder with the potential for slaughter. Their crime is NO CRIME other than to exist and perhaps be a burden on the BLM and USFS agencies who must then perform the JOBS they are paid to do (BY THE AMERICAN PEOPLE) and MANAGE the rangelands and the wildlife living there. It appears the agencies noted are simply taking the easy road by elimination of the horses rather than abiding by LAW and moral obligations to LISTEN TO THE PEOPLE who pay their salaries. AND TO TOP IT OFF... replacing eco-balancing horses with eco-destructive cattle/sheep...is a ludicrous choice and can only be dictated by money...either kick backs from welfare ranchers...or out and out fear of retribution from the same ranchers lobbies come election time.

Where are the good guys? How do the American people and the wild horse stand up to so many bad guys and so much evil intent....? When will we see a hero emerge to STOP THIS ANNHILATION? Will it be a knight in armor on a WHITE WILD HORSE leading the charge...? I wish it could be me...I wish I had the authority and power to put an end to this...BUT I don't and I also believe there is SOMEONE out there standing in the shadows who does have this authority...PLEASE, PLEASE, step forward and help us. You may be maligned by peers but you will be a champion among the people. Let us sing your praises and bring an end to this AMERICAN TRAGEDY.....

[REDACTED]



CCDO\_PineNutHorses, BLM\_NV <blm\_nv\_ccdo\_pinenuthorses@blm.gov>

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## Pine nut wild horses

1 message

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[REDACTED]  
To: pinenuthorses@blm.gov

Thu, Sep 24, 2015 at 8:00 AM

I object to any gathering, roundup or otherwise doing anything. I don't believe your assessment. I need more than Blm saying it needs to be managed and if it does by some outside evaluation, someone not employed by BLM. They can be relocated to other lands cheaper than being struck to slaughter! No slaughter for America's wild horses!!



CCDO\_PineNutHorses, BLM\_NV &lt;blm\_nv\_ccdo\_pinenuthorses@blm.gov&gt;

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## Pinenut hma data

1 message

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[REDACTED]  
To: pinenuthorses@blm.gov

Mon, Oct 12, 2015 at 5:09 PM

Can we as concerned citizens submit data or findings on the rangeland? I have been over there many times.what is the significance of this action being asked now for public comment? I am in favor of letting them remain on their lands,to prserve and protect as the,Act of 1971 states in its original intent .,not multiuse.and certainly not for cows at 1.35 per month,the amount of a can of dogfood.ok [REDACTED]  
[REDACTED]



CCDO\_PineNutHorses, BLM\_NV &lt;blm\_nv\_ccdo\_pinenuthorses@blm.gov&gt;

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## Pine Nut Mountain Herd

1 message

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Mon, Oct 12, 2015 at 9:40 AM

To: pinenuthorses@blm.gov

To Whom it May Concern:

I'm appalled that the BLM commissions reports and then doesn't follow the recommendations. This is just not about the Pine Nut Mountain Herd. The BLM is systematically destroying our wild horse herds throughout the United States. If you would read all the reports you have commissioned you will find that cattle outnumber the horses 50:1 on the public grazing areas. What part of that don't you understand that the cattle need to be removed. They are not protected by any law. Back in 2011 BLM removed 1,263 horses because private land owners asked BLM to do this. Horses are only on a whopping 17% of our public grasslands, of which 77% is given to private cattlemen for grazing of their cows. 83% of the grazing land you manage has no wild horses on it, just private cattle and sheep. What is wrong with this picture.

We have decades worth of empirical evidence showing that public lands ranches rely on hundreds of millions of dollars in taxpayer subsidies. These ranchers only represent 2.7% of the nation's total livestock operators. The US taxpayers are being taken for a ride as well as our public lands and protected species in order to graze their cattle for practically nothing.

BLM should not remove Nevada sacred Pine Nut heritage herd from our public lands. Instead dig springs, install rain water catches, re-seed wild horse forage, and expand AML's - increase protections for the herd's freedom. Open fences to prime grazing and water areas, install road way crossing safe walkway/bridges and during times of drought emergency deliver hay and water to horses and burros living in the wild. Remove all cattle and sheep for these grazing lands and do not renew any permits for this.

For BLM captured horses you need to install shelters and create more water troughs and stop the sale without authority to slaughter for the approximately 5,000 Wild horses and burros in BLM wasteland, namely Palomino Valley And Indian Lakes/Broken Arrow facilities. Or better yet save the horses and surrounding public land's survival by setting captured horses and burros free.

All captured stallions are gelded by BLM, which means they cannot produce. Our wild horses belong to freedom, they do not belong behind BLM bars.

We need the wild horses to roam more freely to reduce wild fires, prevent desertification, spread native seeds and to restore genetic viability for our wild horse and burro heritage to thrive.

This movement is growing stronger everyday due to social media. It would not surprise me that in the near future that most of you will lose your jobs because you tend to lean toward the Oil companies and the private cattlemen.

Lastly, why don't you read your documents that you commissioned and follow their suggestions.

Sincerely,

[Redacted signature]



CCDO\_PineNutHorses, BLM\_NV <blm\_nv\_ccdo\_pinenuthorses@blm.gov>

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## Fwd: Please don't remove the Pine Nut Horses

1 message

Thu, Oct 15, 2015 at 3:20 PM

To: BLM\_NV CCDO\_PineNutHorses <pinenuthorses@blm.gov>

----- Forwarded message -----

From: **CCDOWebmail, BLM\_NV** <blm\_nv\_ccdowebmail@blm.gov>

Date: Tue, Oct 13, 2015 at 12:09 PM

Subject: Fwd: Please don't remove the Pine Nut Horses

To: [REDACTED]

----- Forwarded message -----

From: [REDACTED]

Date: Fri, Oct 9, 2015 at 9:27 AM

Subject: Please don't remove the Pine Nut Horses

To: [ccfoweb@blm.gov](mailto:ccfoweb@blm.gov)



After all what harm have they done. We moved into their area's, and was told if we didn't want them in our yards to put up fence's, not for our next door neighbors to feed them apples at nights, because they think as them as pets. It's maybe time to in force that no feeding law! And start telling people to fence them out. Theres so many ways around keeping them out of yards, but people don't listen! Please don't remove the Pine Nut Horses, in force the laws!



CCDO\_PineNutHorses, BLM\_NV <blm\_nv\_ccdo\_pinenuthorses@blm.gov>

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## No horses should be gathered

1 message

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Wed, Sep 23, 2015 at 10:28 PM

[REDACTED]  
To: pinenuthorses@blm.gov

Anywhere, ever again. Stop giving away my public lands to welfare ranchers. Horses are a part of our past and deserve to run free. Cows that make money for wealthy people on the public dole with cheap grazing rights on those public lands do not deserve anything. Period.

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]



CCDO\_PineNutHorses, BLM\_NV <blm\_nv\_ccdo\_pinenuthorses@blm.gov>

## Fwd: stop the roundups

1 message

Thu, Oct 15, 2015 at 3:40 PM

To: BLM\_NV CCDO\_PineNutHorses <pinenuthorses@blm.gov>

----- Forwarded message -----

From: **CCDOWebmail, BLM\_NV** <blm\_nv\_ccdowebmail@blm.gov>

Date: Wed, Oct 7, 2015 at 2:06 PM

Subject: Fwd: stop the roundups

To: [REDACTED]

Please see email below.

Thanks, Lisa

----- Forwarded message -----

From: [REDACTED]

Date: Tue, Oct 6, 2015 at 2:14 PM

Subject: stop the roundups

To: [ccfoweb@blm.gov](mailto:ccfoweb@blm.gov)

"Hundreds of years of natural selection, of braving extreme heat and cold, and of battling for breeding rights have resulted in animals that survive on meager rations and are resilient, tough footed, surefooted, intelligent, and perfectly suited for a 3,000-mile pack trip through the same lands to which they are adapted."

to round up these animals by the thousands only to place them in cattle holding pens is extreme animal cruelty...

roundups have caused great stress to these animals, confusion, separation of family and the loss of freedom,,,, to be put into overcrowded corrals , males fighting males, and to say nothing of all the injuries caused by the overcrowdedness.... and ultimately deaths in some cases...

what is your rationale for the roundups? why are all of our wild horses everywhere suddenly being herded into holding pens...

and yes please ,,I would like a response... thank you for your time

September 22, 2015

VIA US MAIL and E-Mail (pinenuthorses@blm.gov)

Mr. Ralph Thomas, District Manager, & Mr. Leon Thomas, Field Office Manager  
Carson City District, Sierra Front Field Office  
Bureau of Land Management –USDI  
5665 Morgan Mill Road  
Carson City, NV 89701  
T. (775) 885-6000

Dear Sirs:

On behalf of Friends of Animals, I have thoroughly reviewed your Draft Pine Nut Herd Management Area (HMA) Evaluation (hereinafter, “Evaluation”) that was recently released on September 8, 2015. Based in large part upon a study I recently conducted on the Pine Nut Mountains ecosystem, the following comments and suggestions are respectfully submitted. I would appreciate your careful consideration of these points when revising your plans. The future integrity and viability of this highly unique and much valued wild horse herd depends upon your fair and even-handed treatment of these animals, which constitute a “national heritage” and belong to a “returned North American native species.”

There were several flaws with the Evaluation, which fails to consider a number of major factors influencing the Pine Nuts’ ecosystem. Also it needs to more carefully identify trends in the condition of the range, so as to more thoroughly evaluate the causes of current condition. The Evaluation contains very limited data about specific allotments and lacks consistent observations related to specific areas over consecutive years. It indicates that all areas are in decline regardless of how many horses, if any, graze in the areas and then concludes – without substantiation – that wild horses are the cause of habitat decline.

Throughout the Evaluation, you continually emphasize damages done by the wild horses. This is your one consistent theme. But your analysis of the causative factors influencing the Pine Nuts ecosystem is surprisingly shallow and simplistic. You consistently fail to recognize major ecologically disruptive and environmentally damaging factors that impact this ecosystem, particularly its wild horse herd and HMA.

Your bias against the wild horses is revealed in the Introduction where on page 5, Section 1.1, you immediately preclude that range “deterioration” is “associated with overpopulation of wild horses...” This reveals the preparers’ negative predisposition toward the wild horses from the study’s onset.

The Evaluation also fails to consider the legal rights of wild horses. These concern their basic survival necessities, including water, forage, shelter, and seasonal migratory habitat space. And you ignore a core mandate of the Wild Free-Roaming Horses and Burros Act of 1971, which is to preserve the “free-roaming lifestyle” of the wild horses. No where in the Evaluation do you acknowledge any positive qualities or contributions that wild horses bring to the Pine Nut Mountain ecosystem; and no where do you carefully examine how in cooperation with the public the BLM could provide adequate watering sources and foraging opportunities in such a way that neither water nor forage sources would be damaged. It appears that you are “putting the squeeze” on the Pine Nuts’ wild horses.

One way to alleviate the situation you describe in your Evaluation would be to restore the wild horses’ access to the Carson River. This river has been a traditional watering source for significant segments of the herd both on the northern (paralleling Ft. Churchill Road) and the northwestern (paralleling Deer Run Road) sides, but recent fencings by ranchers along Ft Churchill Road and removal of wild horses from the Deer Run Road area have – without doubt – greatly compromised the survival resources of a significant part of the Pine Nut Mountain herd.

Although your team places major emphasis on damages to water sources, no serious solution is ever presented to remedy this situation. One such would be to become proactive in forming cooperative agreements with the ranchers along the Ft Churchill Road and Carson River so that the wild horses could come down to drink at this river, as has been their custom for many generations past. Another remedy is to examine the fencing patterns that separate the various grazing allotments within the HMA and open these fences up where they are preventing the wild horses from accessing vital water as well as forage and shelter habitat components. Your study mentions that at several springs, the fences/barricades placed around these were knocked down, though it is not specified whether it was the wild horses who knocked these down. From my observations people had a hand in knocking many of these down, including hunters, campers and OHVs. You do not recognize the possibility of remedying this situation through the construction of stronger fences/barriers, nor is the provision of watering troughs outside these exclosures as a solution even mentioned.

The message that comes across from the Evaluation is that the wild horses are inherently destructive to the ecosystem, but this is far from the truth, as they make many positive contributions to soils, seeding of plants, fire prevention, opening up of thickets and of water sources, etc. It is also true that when the horses are given adequate habitat and space they do not camp on the water sources, as do cattle, but roam far and wide not overly impacting

the water sources. This is a subject I have described in considerable detail in my published works. Many wild horse advocate groups would be quite willing to contribute their time and efforts to working out programs that harmoniously provide for both a healthy habitat and a viable wild horse population that is not so small that it is not even genetically viable.

Again, the Evaluation overlooks the major ecologically disruptive factors that have and/or continue to severely impact the Pine Nut ecosystem. As a wildlife ecologist, I have conducted an independent field evaluation and written a report on this for Friends of Animals. Portions of this are included with this letter for your careful consideration.

I was particularly astonished by your team's failure to recognize the enormous environmental damage that is being caused in the Pine Nut Mountains and surrounding areas by off-highway-vehicles (OHVs) including four-wheel-drives, motorcycles, quads, pickups, jeeps, and the like. In our flight over the Pine Nuts, we estimated that one fifth to one-third of the Pine Nuts ecosystem are adversely affected by vehicle trampling. I immediately noticed that many of the springs your team describes as being degraded by wild horses had in fact been terribly damaged by vehicles as well as by associated camping, hunting, target practicing, mining and other human activities. Hercules Spring is one such area, and for nearly all the other springs examined, your team similarly ignored major human-caused impacts.

Instead of on the wild horses, by focusing on damage being caused by vehicles and by consequently restricting vehicle entrance into vital habitats portions of the Pine Nut Mountain ecosystem, BLM would greatly improve the habitat for all wildlife, plants and animals, Greater Sage Grouse, Mule Deer, Wild Horses, rare and threatened plants, etc.

Nowhere in the Evaluation is the issue of the Pine Nut Mountain wild horse herd's long-term viability ever considered. This is a serious oversight, particularly since, along with the U.S. Forest Service, the Bureau of Land Management is charged by the Wild Free-Roaming Horses and Burros Act (WFHBA) with preserving and protecting, as well as managing, wild horses and burros. As an agency, you should not lopsidedly favor management and control, but should give even more emphasis to the preservation and protection side of the law, as per section 3(a) of the Act, i.e. management at "the minimum feasible level." The Act prescribes securing the wild horses' legal rights to adequate resources, including water, forage, and shelter, and defending them against their enemies, including especially humans.

I conclude that the Pine Nut Mountain wild horses are being set up for failure by the very agency entrusted with their preservation. The so-called Appropriate Management Level of 119 to 179 (Mean = 149) horses is not even genetically viable. Furthermore ca. 60%, or three-fifths, of the original Pine Nut Mountain Herd Area has been declared off-limits to the wild horses, and designated a "horse free area" (the term I recall as being used in the 1980s).

One noble remedy for the predicament people have created for the wild horses in the wild here would be to simply restore the full Pine Nut Mountain Herd Area for the wild horses' reoccupation. Particularly in this day and age of Global Warming, in order for there to be a truly viable wild horse population, the Pine Nut Mountain wild horses will need as much of their original 1971 Herd Area as possible. And there exist many possibilities to set up cooperative agreements with wild-horse-appreciating property in-holders, including native, to assure a long-term-viable population of wild horses at a much more substantial AML. The great caring that the great majority of humans living in and around the Pine Nut Mountains have for these wild horses strongly argues for restoring the herd to its original full Herd Area. This would alleviate the unnatural concentration of wild horses at the northern end of the Pine Nuts and would benefit the entire Pine Nut Mountains ecosystem. The wild horses would greatly reduce dry flammable vegetation and prevent catastrophic wildfires – a major consideration today!

By putting into place the sound principles of Reserve Design (see Ch. IV of my book [The Wild Horse Conspiracy](#), and my 2014 professional article, both in my study's bibliography), we could realize a thriving wild-horse-containing ecosystem where wild horses could fill their niche and self-stabilize as a population. This would involve barriers, natural and/or artificial, around the periphery of the Pine Nut Mountains HA/HMA, as well as the implementation of appropriate positive reinforcement and where necessary adverse conditioning in order to contain the wild horses population. Please let me know what you think regarding this proposal, because there is no project I would like better to work on. Basically this involves the humility and respect on the part of us people to let the horses themselves and the natural ecosystem inform us as to how many wild horses truly belong here. And this is totally consistent with the pure spirit and original intent of the WFHBA.

Finally, I am very concerned about BLM's apparent choice to tamper with the reproductive system of the Pine Nut wild horses, particularly through the widespread inoculation of the mares with PZP. Based on several interviews and professional articles derived from in-depth field studies, this would prove a tragic mistake. Given the current genetically sub-viable population level of the Pine Nuts horses, the inadequate AML, and the major stress and social disruption PZP causes, such major interference would severely compromise the ability of these mustangs to survive in the long-term. It would greatly thwart a sound Natural Selection that is key to achieving true balance and harmony in the Pine Nuts, as elsewhere. I should also mention that I am very concerned about the excessive drawdown of water tables by wells in and around the Pine Nuts and the piping out of spring and creek waters. People must learn to share these waters with the wildlife community of this awesome mountain range.

For the above and numerous associated reasons and on behalf of Friends of Animals, I again urge your carefully consideration of the above points and those raised in my report. And I again extend my sincere offer to collaborate with you so that together we can

responsibly do what is right for these magnificent horses, in place of continuing to set them up for failure and of dishonorably using them for dishonest blame.

Sincerely,

[REDACTED]

for Friends of Animals

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Enclosed: Ecological evaluation of Pine Nut Mountains & its wild horses, wildlife, disturbances factors, etc.

## **Pine Nut Mountain Ecological Report, with particular Focus on Wild Horses -- Overview**

By [REDACTED]

Dates of research: March to June, 2015.

Photographs of Pine Nut Mountains available on request.

July 5, 2015

### **Natural and Human-Associated History**

The Pine Nut Mountains Range is mainly under the jurisdiction of U.S. Department of Interior's Bureau of Land Management, Carson City District Office, but also includes some significant portions of private and Native American lands. It is the first range east of the Carson Range offshoot of the Sierra Nevada Mountains. The Carson Range forms the eastern wall containing that gem of the Sierras: Lake Tahoe. If its attenuating foothills are included, the Pine Nuts measure ca. 40 miles north to south and in its widest north sector extend east to west ca. 20 miles. The highest peak: 9,450' Mt. Siegel is 4,900' above Artesia Lake (ca. 4,550') on its eastern side, which makes for a tremendous relief (McLane 1978, p. 72). The Pine Nut Wild Horse Herd Area & Herd Management Area occur in the Pine Nut Range (Map, Flight Report).

The Virginia Range and Flowery Range lie to the north of the Pine Nuts and both are also home to wild horses. All these ranges fall within Great Basin section of the Basin and Range geological province (Trimble 1989, p.7). The Great Basin extends between the Sierra Nevada Mountains on the west and the Rocky Mountains on the east and contains hundreds of mountain ranges that geologists confirm have resulted from a pulling apart of a high plateau with many resulting peaks and collapsing valleys. This accordion-like pulling apart occurred as both the Rockies tectonic plate and the Pacific tectonic plate moved in opposite directions. The resulting creation of many separate mountains and valleys has helped produce many different species of plants and animals, including mammals (Badgley 2014). Ecologically Great Basin counts on more species than any other region as one proceeds east in a straight latitudinal line across the prairies and plains, forests and mountains clear to the Atlantic seaboard.

The Pine Nut Range has been an important wintering area for Native American tribes including the Washoe and the Northern Paiute. Wildlife species such as Mule Deer, Black Bear and Puma count among many species that have traditionally migrated to the Pine Nuts from the Sierra Nevada during autumn and return in the spring.

Since the Pine Nut Mountains lie on the western edge of the Great Basin bordering on the Sierra Nevada Mountains, they show ecotonal characteristics that result from a gradation between the Sierra Nevada montane ecosystem and the more central Great Basin ecosystem. For example, the elegant Western White Pine (*Pinus monticola*) occurs here but not further east (Lanner 1983, p. 40). Thus, the Pine Nut Range, at least originally, possessed an even greater species diversity than is typical for a comparably sized range in the Great Basin. To the west of the Pine Nuts lies Carson Valley and Carson City; to the south lies Topaz Lake; to the east: Smith Valley, the Buckskin Range and the Singatze Range, while the Desert Mountains and Misfit Flats, of synonymous famous movie's name, lie to the northeast. The Carson River lies to its west as well as to its north; and this river has traditionally been an important water source for the wild horse herd. The Walker River lies to the south and southeast and has been an important water source for the mustangs and other wildlife for many generations. Spectacular peaks of

the Sierra Nevada lie to the southwest and the much drier Wellington Hills to the southeast. The Artesia Lake State Wildlife Management Area also is located just to the east of the Pine Nuts' midsection.

Unfortunately for all the plants and animals that have evolved here, their home Pine Nut Range has been intensively targeted for exploitation by largely settlers of European descent during the past 1-&-3/4<sup>th</sup> century. Before the arrival of the Whites, for several thousands of years, Native Americans had subsisted in these mountains. During the past ca. 3,000 years it has been chiefly the sturdy Washoe Indians who have dwelt here. But Northern Paiutes communities pre-dated the Washoes by thousands of years (D'Azevedo 1986, pp. 466 ff.).

The Pine Nut Mountains contain several high peaks of which Mt. Siegel at 9,450' elevation is the highest. The base of the Pine Nut Range usually starts about 4,500 feet. Extensive alpine meadows occur at the higher reaches of the range as well as Mountain Mahogany stands, important for the over-wintering of herbivorous Mule Deer, Bighorn Sheep, and the Wild Horses themselves. At the base of the mountain is the prevalent Sagebrush-Steppe ecosystem. Pinyon-Juniper Woodlands occur at mid elevations generally 6,000 to 7,600 feet. Annual precipitation ranges from 6" in the driest sections most in the rain shadows of both the Sierra Nevada and the Pine Nut ranges, to precipitation in excess of 16" in the highest mountains. Along with much of the West, this portion of Nevada and bordering areas in California have been experiencing unusually low levels of precipitation during the past several years, which is having a serious impact on wildlife and vegetation.

The most characteristic ecosystem in the Pine Nuts is the woodland composed of Pinyon Pine (*Pinus monophylla*) and Utah Juniper (*Juniperus osteosperma*), termed Pinyon-Juniper Woodland (PJ Woodland, for short). PJ Woodland's climate is cool, and its average yearly precipitation usually falls between 12 & 15 inches. This ecosystem was, and remains for many survivors, most important to the Native American tribes, one of whose chief staples is the Pinyon Pine Nut, traditionally harvested during the autumn. To this day these tribes continue their centuries-old festivals and religious ceremonies, and possess legal rights to utilize these pinyon groves. The Pine Nut Mountains were appropriately named for their extensive Pinyon Pine trees, which live symbiotically with many Junipers in a remarkably well-spaced distribution. In past times, the Juniper berry was also utilized as well as many other natural life-sustaining fruits of this range. For this reason, Native Americans are among those who have a strong objection to further Pinyon-Juniper Woodland reduction proposed by BLM.

Including the peaks, slopes, piedmonts and valley edges, the Pine Nut Mountains are a highly species-rich, or biodiverse ecosystem (See Species List). Its climate is semi-arid with relatively high evapotranspiration rates compared with the Sierra Nevada forests and Central Valley ecosystems just to the west. Its highly accentuated topography with deep canyons and frequent peaks and depressions as well as several types of ecological communities (intergrading as ecotones in many places) – all have provided more overall niche spaces for the occupation and even evolution of diverse plants and animals when compared with many other Great Basin Ranges. And this biodiversity also relates to the many springs and streams here (Hagerty 1970). The many mountainous depressions of the Pine Nuts serve to capture and retain more of the rain and snow that falls over longer periods of time and to add these to underground reservoirs.

Reptiles account for an impressive variety of species, particularly lizards, including the Great Basin Fence Lizard and the Northern Sagebrush Lizard, which are commonly seen (see Species List). Rodents are even

more diverse and abundant and many emerge at nightfall especially during the warm seasons. Some of these species such as the Deer Mouse cache the seed of the Pinyon Pine and allow this tree to recuperate after extensive wildfires and extensive tree felling by modern society, as occurred especially during the 1800s with its Comstock silver strike. The trees were used in ore smelters around Virginia City. Also the “chaining” method of tree clearing and the chain-sawing of vast swaths of Pinyon-Juniper woodlands to cater to cattle and sheep ranchers have done extensive ecological damage in the Pine Nut Mountains ecosystem.

Birds are also amazingly diverse and abundant in the Pine Nut Range and include a wide-variety of songbirds, corvids, and raptors, including the majestic Golden Eagles. Among the corvids are the Western Scrub Jay, Pinyon Jay, Magpie and Raven. The Pinyon Jay (*Gymnorhinus cyanocephalus*) is especially helpful to the Pinyon Pines because of its habit of caching its nuts over extensive areas, many of which are not subsequently eaten but go on to germinate when climate and soil conditions are just right. These and similar fruit-eating birds as well as coyotes and jackrabbits eat the hard-seeded fruit of the Utah Juniper and disperse its seed for germination. Both pinyon and juniper contribute important habitat for many diverse species and protect the soils, watersheds and life communities from harsh sun and winds – an especially important attribute considering escalating Global Warming today! The Pinyon Jay, by the way, is known for its unique “leapfrogging” flight pattern, also called “spherical,” by which large numbers, even in the hundreds, of jays act like a giant sphere rolling over the landscape. A fine description of their life and ecological importance is given by ornithologist Dr. Fred A. Ryser, Jr. (Ryser 1985, pp. 365-373).

The Alpine Zone starts about 7,600’ elevation and above and typically have had deep snow packs that feed the creeks and streams draining from the range, either ephemerally or, for several flows, year-round. However, these snow packs have dwindled greatly in recent years. It is to these alpine meadows particularly, from south to north, around Bald Mountain, Mt. Siegel, Mineral Peak, Galena Peak, and Mt. Como, that wild horses, mule deer, and other animals customarily migrate during the warmer seasons. Unfortunately, these areas have been seriously degraded by modern man’s activities (see Ecological Disturbance Factor report).

The Sagebrush-Steppe Zone (which could also be called the Sagebrush-Rabbitbrush-Steppe) lies below the Pinyon-Juniper Zone and leads to the valley bottoms. This zone occurs between ca. 4,500’ & 6,000’ elevation, and is an important wintering area for many animals, including the wild horses. However, along with the Alpine Zone & PJ- Woodland, this ecosystem has been negatively impacted by modern man, especially given its close proximity to permanent habitations. This is of great concern not only for the wild horses but also for the potentially federally listed Greater Sage Grouse (*Centrocercus urophasianus*), whose population in the Pine Nuts had been classified as a “Distinctive Population Segment” called the Bi State Sage Grouse. However, in a recent decision, this was not listed as threatened/endangered by the U.S. Fish & Wildlife Service.

In addition to PJ Woodland and Sagebrush-Steppe life zones, Blackburn *et al.* (1969) also recognizes the “Salt Desert Shrub” zone in the Pine Nut Mountains. Here more arid-adapted life forms such as shadscale and four-winged saltbush occur (see Species List). While not as extensive as the former two zones, this zone also deserves protection, but is too often being abused by overgrazing of livestock, uncontrolled recreational vehicles, uncontrolled mining, and other exploitive activities.

In the area of Mt. Siegel, a threatened plant species, Gordon's Ivesia (*Ivesia Gordonii*) survives and warrants special protection. Recreational vehicles as well as livestock grazing seem to be the major threats to this important species.

One Wilderness Study Area of 13,395 acres occurs in the southeastern Pine Nut Range: Burbank Canyon. Designated as a Scenic Area by BLM and closed to vehicles, it is very spectacular and species-rich, with jagged, jutting cliffs, exuberant bushes and trees, birdlife, and other wildlife.

#### Herd Area vs reduced Herd Management Area

The original 1971 Pine Nut Wild Horse Herd Area contains 182,668 acres (USDI 2007), but the reduced Herd Management Area, where BLM has decided to allow wild horses to remain, contain only 94,694 acres. Thus, ca. 50% of their legally designated area has been declared "horse-free" in the south & central portions of the range south of the Sunrise Pass Road. This area contains most of the wild horses' traditional summering meadows and is more well-watered. This portion's being declared off-limits to the wild horses constitutes a big blow to their health, vitality and long-term survival because of this large reduction of the habitat and resources.

Reasons given for zeroing-out the most important portion of the wild horses' original legal Herd Area are: "extensive private inholdings," including Native American, but the underlying reason is the desire of large livestock, mining, and hunting interests to monopolize the resources of this area and a resentment of having to share such with a viable mustang population. The letter I received from the Bureau of Indian Affairs agent requesting total removal of wild horses from the Pine Nut Mountains on behalf of the Native Americans (mainly Washoe and Paiute) was belied by the local Washoe tribal chairman (see Downer 2014. *The Wild Horse Conspiracy*, p. 99). By taking away many of the prime, year-round habitat components of the wild horses, the BLM has seriously compromised this respectable and historic mustang population as to its long-term survival requirements, or viability. The Slater Mine and the 9,450-foot-high Mt. Siegel area as well as the Mt. Bald area constitute the centuries-old, warm-season foraging areas for the Pine Nut wild horses. To deprive them of this area was a violent act that upset their generations-old annual cycles that benignly harmonize with the Pine Nut Mountain ecosystem.

The very low and disproportionate Appropriate Management Level (AML) of 119 (low) to 179 (high) individual horses equates to an average AML of 149. This is equivalent to allowing only one individual horse for every 1,226 acres of original Herd Area acres (182,668) and for every 636 acres of reduced Herd Management Area acres (94,694)! (See Flight Report for analysis.) This is a grossly unjust, since even in the driest of Nevada Great Basin habitats, 200 acres can sustain one wild horse (and even more burros) provided the natural waters have not been monopolized by ranchers for their livestock and alfalfa fields, or miners for their open pit or other types of mines, or for mushrooming developments including subdivisions and golf courses. It is imperative that public waters remain open for the wild horses and not be fenced off or otherwise drained, poisoned, or made unavailable, not only for the wild horses sake but to all wildlife.

An allocation of 100 acres per wild horse would be much more reasonable, given the more well-watered and vegetated Pine Nut ecosystem. Based on this assessment, my estimate for the Carrying Capacity of wild horses in the Pine Nut Herd Area is 1,827 wild horses. Similarly, the carrying capacity of the reduced Herd Management Area would be 947 horses. Thus, the original Herd Area could sustain over 12 times the current assigned AML, and the reduced Pine Nut Herd Management Area could sustain over 6 times

this same average AML figure of 149 individual wild horses. Progress here, however, depends on the wild horses not continuing to be deliberately set up for failure within their own legal areas where they possess the right to be the principal recipient of resources, not livestock ranchers, miners, hunters, subdivision and golf course owners, etc. By allowing the wild horses to truly fill their ecological niche in this spectacular and biodiverse region, we humans would behold unfolding an enhanced and flourishing ecosystem that would be a true boon to the whole state and nation as, indeed, our whole world.

According to the IUCN Species Survival Commission Equid Specialist Group: "... in captive populations, we recommend a minimum population size (N) of 500 individuals, a studbook, and careful genetic management [but] for wild populations we recommend a minimum size of 2,500 individuals." According to this official document composed by the world's authorities on members of the horse family: Equidae, such population numbers would "prevent extinction and conserve the genetic diversity of equids" (Duncan 1992, p. 5).

As is the case with so many other wild horse/burro legal areas established by the WFHBA and contrary to the pure intent of this unanimously passed law governing an important human quality-of-life, general-public issue, the natural, aesthetic, and moral values of the wild horses are being ignored by prevailing political powers. All the while the aggressive public lands exploiters are being accommodated and to an extreme degree. Basically, wild horses are described as misfit, feral, non-natives that are ecologically destructive, even though an abundance of evidence proves all the opposite. Horses are truly of North American evolutionary origin and long-standing; and when they return to living in their ancestral homelands, they do in fact restore this life home in many fascinating and naturally productive ways (see Downer 2014, both). Much of this has to do with their being post-gastric/hind-gut/caecal digesters that constitute an enormous positive counter-balance to the entirely unnaturally preponderance of pre-gastric, multi-stomach, ruminant herbivores, such as cervids, or members of the deer family, and bovids, or members of the sheep and cattle family. Both cervids and bovids are much more recent arrivals in North America; and they did not originate on this continent to the same degree as did the horses and nearly all species of their ancient mammalian family, Equidae (Klingel 1979; MacFadden 1992).

It is also of particular interest to note that Western North America, including the Great Basin, upon whose westernmost edge the Pine Nut Range occurs, is the most intensively mammal-inhabited region in North America. This is scientific fact (Grayson 2011, pp. 176-180, Fig. 7-2, p. 179). And the fossil record shows a relative abundance of Pleistocene mammals in the Great Basin, with more horse fossils than any other mammal group.

Much more can be said about the magnificent Pine Nut Mountains, but this should suffice as an introduction. I recommend the reader visit this beautiful but beleaguered mountain range in order to personally discover its special charm.

## Environmental Disturbance Factors Assessed in the Pine Nut Mountains and their Wild Horse Herd Area and Herd Management Area, Western Nevada

Photos of portions of my ecological study available on request.

July 7, 2015

Nine major Environmental Disturbance Factors were noted in the 35 Ecological Evaluations I made in the Pine Nut Mountains in May and June of 2015. The following chart shows the concise results:

**Table 1.**

**Disturbance Factor                      Number of Ecological Evaluations (N = 35) in which factor was major**

1. Fire, resultant Cheat Grass	31
2. Wind Erosion, soil scouring	29
3. Water Erosion/Flood Washes/Gullies/Rills	28
4. Road/Off Road Vehicles/ 4WD Vehicles/Cheat Grass	26
5. Livestock/Cattle/Sheep/ resultant Cheat Grass	21
6. Hunters/Shooters/Tar- get Practice/Trappers/ Predator Control	20
7. Campers/Visitors/Litter/ Garbage/Oil & Battery dump	18
8. Pinyon-Juniper Clearance projects/Woodcutters/resultant Cheat Grass	16
9. Mining/Open & Borrow Pits/ Mining Roads/resultant Cheat Grass	15

**Vehicle Related Damage:**

The most pervasively destructive, “root cause” disturbance factor concerned the entrance of vehicles into the Pine Nut Mountain ecosystem. Such entrance by vehicles, whether four-wheel, all terrain, motorcycles, or even mountain bike, nearly always accompanies the majority of the other disturbances such as livestock, hunting, pinyon-juniper clearance, woodcutting, camping and mining – and even the instigation of major wildfires, whether by means of an overheated catalytic converter, or a spark from a rock that is somehow impacted by the vehicle. It should also be emphasized that the pervasive Cheat Grass, aka Downy Brome, (*Bromus tectorum*) takes hold on disturbed soils; and vehicles, wherever they go – especially off-road – end up creating these perfect germination sites for this and other hardy invaders, often primary successional plants.

**Livestock Related Damage:**

Brought in to strip the vegetation, usually during late spring and early summer when forage is most

abundant and nutritious, cattle and sheep are also major disturbers of soils, thus helping to spread the cheat grass and other invading species such as thistle. (See Species List for many invader type plants.) Cheat grass is highly flammable and the ever more frequent wildfires here, such as the enormous Bison fire of 2013, are definitely related to this extensive cheat grass invasion. Cheat grass and other highly flammable grasses and forbs, often not of North American origin, are often referred to as “flash fuel”.

#### **Reduction of Wild Horse Population and Its Adverse Ecological Effects, Rationale:**

Also related to increased wildfires is the great reduction of wild horses throughout the original Pine Nut Mountains Herd Area. This is due to the fact that wild horses are ideal reducers of dry flammable vegetation and convert such into moisture-retaining and nutrient-rich soils that support many of the native plant species. The post-gastric digesting horses are more capable of seeding these species when compared to ruminant herbivores. The latter include members of the deer (Cervidae) and cattle and sheep (Bovidae) mammalian families. Their multi-stomach, pre-gastric digestive system much more thoroughly decomposes the plants they consume. Their feces are more broken down and do not “feed” the ecosystem in which they are deposited to nearly the extent to which members of the horse family (Equidae) do. Horse feces also bolster the food chain, or web, from microorganisms to larger animals.

In their digestive process, wild horses do not destroy nearly the quantity and variety of plant seeds that ruminant digesters do. For this reason, objective observers often report a flourishing and restoration of places that are allowed to become harmonious “wild-horse-containing ecosystems” where the horses are allowed to fill their special ecological niche.

#### **Livestock, Adverse Ecological Effects:**

Cattle brought into the semi-arid Pine Nut ecosystem by nature gravitate to sparse water sources, including the springs and creeks and their highly biodiverse riparian habitats, because in such moist habitats they evolved over thousands of years. I observed the destructive effects of cattle and sheep in the Pine Nuts in 21 of my 35 Ecological Evaluations. They were especially flagrant in delicate riparian communities such as generative meadows, often with willows, wild rose, rushes, cattail, aspen & other hydrophilic plants. As often stated: water is the lifeblood of the desert, but when these precious and infrequent sources are despoiled, all the delicate desert community give out a desperate cry for help!

#### **Mining: Adverse Ecological Effects:**

Mining with associated factors is also major in the Pine Nuts’ ecosystem (in 15 of 35 evaluations); as is evident in a Superfund site in its southern end. This is associated with the DaNite mine and its predecessors that date back to the 19<sup>th</sup> century. This toxic soup remains a major source of ecosystem poisoning – particularly ground water and it will likely take millennia to heal. Since the antiquated 1872 Mining Law gives a large degree of unrestricted license to mining operations, both in their exploratory and extractive phases, these ecological disturbances (present in nearly all parts of the Pine Nuts) pass largely ignored by the BLM and other agencies. Their “mitigating measures” are entirely inadequate and only serve as cover-ups for the trenchant ecological damage mining activities have and continue to do.

#### **Hunting, Trapping, Predator Control & their Adverse Ecological Effects:**

Similarly, the deleterious effects of hunting, trapping, and predator control are largely ignored and the State of Nevada’s Department of Wildlife is given broad license to promote unnatural numbers of hunted, or “game,” animals, large and small. In 20 of 35 evaluations, the Hunting, etc. (#6) Ecological Disturbance Factor was major. This factor relates to the Livestock factor (#5) in the Pine Nut Ecosystem, as elsewhere throughout the West due to the pervasive and long-standing Predator Control programs

that are backed by millions of dollars of federal, state, and local government (ultimately taxpayer) money. Today, the federal government euphemistically titles this the Wildlife Services program. This is under the US Department of Interior's U.S. Fish & Wildlife Service (USFWS) that controls our National Wildlife Refuges (NWR), many of which are open to hunters and even livestock grazing. (See two Knudson references in Bibliography, for recent brilliant expose of Wildlife Services.) A prime example of anti-wild-horse policy in the USFWS occurs in northern Nevada's & southern Oregon's Sheldon-Hart NWR, where all wild horses have been eliminated in recent years through USFWS-contracted roundups. Yet this injustice was perpetrated in spite of studies proving the wild horses and native pronghorn antelope – among other wildlife – live harmoniously and compatibly together (Meeker 1979), and also in spite of an earlier agreement with Wild Horse Annie's organization to allow for this population "in perpetuity" (Downer 2014 p. 90-91).

For nearly two centuries, the Pine Nut Mountains have been a focus of native predator extermination campaigns. These target especially the Coyotes (*Canis latrans*) and the Mountain Lion, or Puma (*Felis concolor*) – and there are very few pumas left in these mountains. Whereas in earlier years (and I have been observing the Pine Nut ecosystem since the 1970s) I would usually encounter fairly frequent puma spoor, during the past two months I encountered only a few signs of the stealthy puma. As other predators do, pumas tone the prey populations of large herbivores such as the Mule Deer (*Odocoileus hemionus*) and Bighorn Sheep (*Ovis canadensis*) that inhabit the Pine Nut Range, making them more fit for survival in the long-term as well as more harmoniously adapted to this unique ecosystem. By the way, the Bighorn is a recently reintroduced, trophy-hunted species in the Pine Nuts. The scarcity of the puma as a top, or apex, predator is alarming and signifies that the ranching and hunting establishments are finally getting their way with this ancient North American native species with which they are loathe to share the natural world. Cottontail Rabbit and Black-Tailed Jackrabbit abound in the Pine Nuts, and are natural prey to predators like the puma, bobcat, coyote, foxes, and other species. The surging of the Black-Tailed Jackrabbit is directly connected to the elimination of predators from the Pine Nuts.

Though I observed coyotes, I did not see as much sign of them as I have in years past. In part, this is due to waning resources linked to the drought conditions of the past four years or more. However, their decline is also very much due to the ongoing extermination campaign against them, as coyotes are shot on sight, trapped, and poisoned in a variety of hideous ways (see Knutson, 2012 & 2015). They are canny creatures, however, and due to their high reproductive rate and clever adaptations to humans' likewise crafty attempts to outwit them, they continue to fulfill their very important predator role in the ecosystem, thus toning the populations of rabbits, rodents, reptiles, etc. As with their cousins, the wolves, coyotes increase the balanced diversity of species which allows for the all-important resilience, adaptability, and balance this is so crucial today in our era of Global Warming.

Another predator's spoor was encountered during my evaluations in the form of tracks and feces – particularly in higher elevations ca. 7,000 feet – of the Black Bear (*Ursus americanus*). This was pleasing, since these bears were nearly exterminated from the Pine Nuts in past decades. Its feces were full of Pinyon Pine nut shells, highlighting its omnivorous nature. Black Bears are more gentle than their cousins the Brown Bears, which are no longer found in the region. Indeed, the Californian, or Golden, Grizzly (which figures on California's flag) was exterminated nearly a century ago. Bobcats (*Felis (Lynx) rufus*) also inhabit the Pine Nuts, but are on the decline; and the state trapping season does not help this important predator of rodents & ground birds. The bobcat is especially active at twilight; and I observed this mysterious relative of the lynx on more than one occasion, particularly along rocky ledges.

### **Call for Clampdown on Destructive Activities, Consideration of Chukar, etc.**

A serious clampdown on the destructive activities of us humans in the Pine Nut Range is long overdue! We must all take responsibility, not merely shirk it off and blame others. Dominant activities are inter-linked, e.g. livestock and hunting lobbies joining to exterminate the native predators, with which they are loathe to share the deer and upland game birds, and, of course, the multitudes of cattle and sheep that are foisted upon the land and never allowed to naturally adapt, etc.

One obvious hypocrisy concerns the promotion of Chukar (*Alectoris chukar*). These upland game birds are promoted to the tune of many millions of dollars each year. Yet they are native to Asia and Eastern Europe and displace similar native North American species throughout the West, including in the Pine Nuts. Very probably one of these is the declining Greater Sage Grouse. Yet, Chukar hunters and ranchers will joint in a public tirade against the wild horses, animals who are in fact deeply rooted natives in North America, far more so than even the deer and the bison. Indeed, the horse as a species has an evolutionary presence dates back in North America to shortly after the fall of the dinosaurs and may never have been totally absent, and certainly not for any evolutionarily significant period of time (see Downer 2014, Ch. I ). Again, the sheer hypocrisy of scapegoating America's last underpopulated wild horses stands out like a sore thumb! By the way, Ravens and Crows (see Species List) are also being targeted for killing in many places throughout the West. The perpetrators use protecting the Greater Sage Grouse as their excuse, claiming these crows eat some of their eggs, all the while ignoring their own enormous contributions to the Greater Sage Grouse's precipitous decline.

### **Ploy to Use Greater Sage Grouse Protection to Justify Further PJ-Woodland Reduction:**

The population of the "threatened nominated" Greater Sage Grouse (*Centrocercus urophasianus*) that occupies the Pine Nuts was recently recognized as a Distinctive Population Unit (DPU) by many biologists working with the USFWS and BLM, but its nomination for listing under the Endangered Species Act was just denied, in spite of these recommendations. Its rescue by means of promoting taller grasses of various species such as wild wheats and ryes as well as tall Big Sagebrush stands is being used to justify the continued reduction of the Pinyon-Juniper (PJ) Woodlands. I was alarmed at this and recently spoke about this to Mr. Leon Thomas, Field Manager of the Sierra Front Field Office under the Carson City District of the BLM. I mentioned recent extensive wildfires and their significant reduction of these woodlands in the Pine Nuts. In justification, Mr. Thomas showed me a map of exactly where these reductions were planned, which indicated they were not as wholesale as I feared. However, after witnessing large swaths of recent PJ clearance by chain-sawing along the eastern stretch of the Old Como Road, where I performed ecological evaluations, I remain unconvinced. There are many serious damages occurring as a result of such clearances. These include the scouring of topsoil by wind and water (see Table 1, Factors 2 & 3 which were major in 29 & 28 out of the total 35 ecological evaluations that I performed). Also, huge discarded piles of dry branches constituting a real fire hazard were observed throughout these woodland clearances. As per Table 1, Factor 1: Fire was the most prevalent major ecological disturbance factor detected in 31 out of the total 35 ecological evaluations that I performed. For the above and many other reasons, I remain unconvinced of the necessity and wisdom of further PJ-Woodland destruction! PJ woodland shelters the land from harsh sun and wind, provides natural habitat for a great variety of interdependent plant & animal species, including the fascinating Pinyon Jay.

### **Importance of Pinyon Pine Nut:**

The Pinyon Pine Nut, a seed born in pine cones on a two-year cycle, is a traditional staple of the native

Washoe and Paiute tribes (Hagerty 1970; Lanner 1981; Wheat 1967; Zeier, *et al.* 2002). Their members continue to harvest this nutritious, complete food in the fall, often in conjunction with their ancient rituals. At hearings earlier this year for Carson City BLM District's revised Resource Management Plan that will govern several millions of BLM acres for up to 20 years, several Native Americans protested these PJ-Woodland reductions. Indeed, these may become much more than mere thinning if what I observed in the eastern Pine Nuts is any example! Along with my objection to the zeroing-out of six wild horse populations in their proposed alternative, I also joined these stalwart people in defending these venerable trees. This I did both in spoken (Fallon & Sparks meetings) & written form (see my letter to Carson City BLM at my website [www.thewildhorseconspiracy.org](http://www.thewildhorseconspiracy.org)).

#### **Other Ecological Disturbance Factors:**

All of the nine major Ecological Disturbance Factors (see Table 1) are interrelated; but other factors undoubtedly warrant consideration. One concerns the stepped-up chemical seeding of clouds in order to produce rain; and another concerns the "Chem Trail" aluminum particles that are being secretly released into the atmosphere to reflect the sun's rays and stave off the dire effects of Global Warming -- rather than remedy the root causes of such! Both of these were very much in evidence in and around the Pine Nuts and western Nevada during my study. Sometimes the entire sky turned white, and this was not just many jets criss-crossing the heavens!

#### **Overview & Recommendations:**

The Pine Nuts Mountains ecosystem constitutes a beautiful & unique part of Nevada & the West. It should not continue to be the target for overwhelming exploitation. Its destructive unravelling has gone too far. It is high time that we humans pull in our horns and let this magnificent ecosystem recover! We must take the bull by the horns & reduce livestock, vehicle entrance, predator killing, PJ-wood clearing, & similar disruptions. And we should reinstate the magnificent returned native horses in their legal Herd Area throughout the Pine Nut Mountains & bordering valleys and ranges. We should let them fill their niche and self-stabilize by employing the sound principles of Reserve Design (see Downer 2014, Ch. IV).

The wild horses were present in the Pine Nuts in 1971, and their ancestors were here for not just thousands but millions of years prior to this. Furthermore, the Wild Free-Roaming Horse & Burro Act clearly upholds them as "principal" presences in their legal areas (Section 2 c). We would be very wise in letting them be themselves, for there are no greater mutualist partners than returned-native horses allowed to play their role as Nature's true healers and restorers. They are all the opposite of the "misfits" they are so unjustly accused of being by the real misfits: misguided humans who have an "attitude problem" becoming too narrow minded and even blind! At the root of this lies spiritual immaturity, irresponsibility, and especially unbridled selfishness and greed of the short-term, materialistic sort! But the good news is that while we humans are the problem, but the same token we are the solution! So I recommend that we pick & eat more pine nuts, take off more cattle & sheep and eat less meat, obliterate unnecessary roads & jeep trails, & learn to hike in to appreciate the beauty of a restored Pine Nut Mountains ecosystem! It's high time for these & many other changes in our lifestyles, our values, our priorities! We must contritely learn to live in harmony with the Rest of Life, aka Nature, both here in and around the magnificent Pine Nuts -- and wherever we find ourselves. This is our most urgent challenge, and failure to meet this must not be entertained!

**Explanation of:**

**“Analysis of 35 In-Field Ecological Evaluations in the Pine Nut Mountains, by Wildlife Ecologist Craig C. Downer, May & June, 2015”.**

Transects of 100 feet measured by surveyor’s tape were consistently employed.

1<sup>st</sup> Column: Each evaluation is assigned a number.

2<sup>nd</sup> Column: For each evaluation, a date and a time is given, sometimes a temperature. Weather was always clear and sunny during all days of field work in the Pine Nut Mountains.

3<sup>rd</sup> Column: GPS (Geographical Positioning System) reading is given for Latitude and Longitude in degrees and minutes, with decimal readings to the thousandths for minutes when appropriate. I generally received 6 to 10 satellites on my receiver to give precise locations within ca. 20 feet. I used a Magellan Map 330 GPS unit.

4<sup>th</sup> Column: GPS-derived elevation above sea level is given in feet.

5<sup>th</sup> Column: Degree of slope on which each transect was taken, on scale of 0° to 90°. Most transects were between 0° and 25°.

6<sup>th</sup> Column: Aspect, or Direction, of slope at which the transect was taken using the cardinal directions: N for north, S for south, W for west, and E for East, and finer directions such as NNW, i.e. north north west, or ESE, for east south east.

7<sup>th</sup>, 8<sup>th</sup>, & 9<sup>th</sup> Columns: Soil, Water, and Biotic ecological ratings as departure from expected, healthy. Here we begin the three ecological Ratings Columns using the system derived from the Technical Reference manual 1734-6 “Interpreting Indicators of Rangeland Health” Version 4 – 2005 and produced by USDI, Bureau of Land Management, Denver, CO, in conjunction with USGS and USDA NRCS. The Code used in these ratings are based on the Departure from Expected for the place and ecosystem being examined and consist of 5 levels of departure, followed by their abbreviations:

None to Slight: **N-S**;

Slight to Moderate: **S-M**;

Moderate: **M**;

Moderate to Extreme: **M-E**; and

Extreme to Total: **E-T**.

There are 3 ecological Attributes that are rated and these are presented in this order on the chart:

Soil & Site Stability – abbreviation **S**;

Hydrologic Function to do with Water – abbreviation **H**; and

Biotic Integrity to do with the life community of plants and animals, – abbreviation **B**.

A total of seventeen (17) Indicators were used in determining the departures for these three Attributes, with a different combination and number of Indicators for each of the three Attributes.

The 17 Indicators and the Attributes to which each indicator was applied (in parentheses) are as follows:

1. Rills (S, H),
2. Water-flow Patterns (S,H),
3. Pedestals and/or terracettes (S,H),
4. Bare ground or soil as percent (S, H),
5. Gullies (S, H),

6. Wind-scoured, blowouts, and/or deposition areas (S),
7. Litter movement (S),
8. Soil surface resistance to erosion (S, H, B),
9. Soil surface loss or degradation (S, H, B),
10. Plant community composition and distribution relative to infiltration (H),
11. Compaction layer (S, H, B),
12. Functional/structural groups (B),
13. Plant mortality/decadence (B),
14. Litter amount (H, B),
15. Annual production (B),
16. Invasive plants (B), and
17. Reproductive capability of perennial plants (B).

There were a total of 10 indicators for Soils, 10 indicators for Hydrologic/Water, & 9 indicators for Biotic.

10<sup>th</sup> Column: This indicates the Predominate Use for which the area of the transect is being managed by BLM and/or other parties.

11<sup>th</sup> Column: This indicates the main Disturbing Factors that are affecting the area of the transect.

12<sup>th</sup> Column: Here the major Habitat or ecosystem Type represented in the area of transect is indicated.

13<sup>th</sup> Column: This contains a brief ecological description of salient points, species, conditions positive or negative that apply to the area of the transect, salient species, etc. It should be noted that the surrounding habitat around the transect is also taken into account in synthesizing the evaluations made. I also included recommendations for conservation action in this final column.

**Wild Horse Census & Habitat Evaluation Flight (May 5th, 2015), Pine Nut Mountains, western Nevada, with additional assessments of the ecosystem and the wild horse herd**

Team consists of:

[REDACTED] spotter familiar with Pine Nuts ecosystem including wild horses since a boy. [REDACTED]

[REDACTED], spotter familiar with Pine Nuts ecosystem & herd during the past five years who did her M.S. on the Twin Peaks herd of NE Calif. [REDACTED], north of Reno, NV, formerly with SCS.

This is a LightHawk sponsored conservation-fact-finding flight in a Cessna 172 (1957) equipped with GPS and flown by a professional search-and-rescue pilot with extensive flight experience in this region.

**Abstract of Flight Area, Aims, Methods and Findings:**

An independent aerial survey was completed over the Pine Nut Mountains Wild Horse Herd Area (HA) on May 5, 2015 located in Lyon, Douglas & Carson City Counties. Lying to the east of Carson City & Carson Valley, this HA encompasses approximately 182,668 acres, while the reduced Herd Management Area (HMA) on the northern half is 87,974 acres (see maps). The topography of the Pine Nut Herd Area (HA) ranges from rolling hills at 4,500' to 5,000' to the tallest peaks at close to 9,500 feet. Average annual precipitation is strongly influenced by elevation and varies from a low of from 6" to 8" to a high of over 16" at higher elevations.

Our objective was to estimate the population of legally protected wild horses (*Equus caballus*) in the HA and to monitor habitat conditions including its recovery from the Bison Fire, which burned 24,100 acres in July of 2013.

Flight photos as well as ecological field study photos are available upon request.

We left the Reno-Stead Airport at 8:15 AM and returned at 10:30 AM with no stops. The weather was clear with light wind with a temperature reading of 50 degrees F. at departure. Visibility was 10 miles. There were a few brief turbulent gusts felt over the higher peaks and deepest canyons.

During the aerial survey, a total of 36 wild horses were counted along the 164 miles of transect strips flown within the Pine Nut Mountain Herd Area boundary. Using the Aerial Strip Transect Method, the survey estimated the populations of wild horses and burros in the Pine Nut Herd Area as:

**92-119 wild horses.**

Taking the mean of 105 wild horses and dividing this into the 182,668 acres, or 285.4 square miles, in the HA yields a population density of one individual wild horse per 1,740 acres, or 2.72 square miles. This is same as a density of **0.37 horses per square mile**. This is a very underpopulated, in fact, nearly wild-horse-empty Herd Area. If we restrict our purview to just the northern Herd Management Area, with its 87,974 acres and suppose all the 105 wild horses were concentrated there, we would obtain only one horse per 837.8 acres, or 1.31 square miles. This is the same as a density of 0.76 horses per square mile. Both figures are extremely low and represent an ecosystem in which the wild horses are far from filling their ecological niche, or reaching their carrying capacity. And this is in spite of the legal fact that the HA and its resources, i.e. the original "range" defined in Section 2 c of the Wild Free-Roaming

Horses & Burros Act of 1971 (WFHBA), is to be “devoted principally” to the wild horses & burros and their welfare. (Acreage figures for HA & HMA taken from USDI. 2007. Public Lands Statistics.)

A reproductive rate of 4 foals divided by 32 adult or subadult horses = 0.125, or 12.5% annual reproductive increase by birth. But this does not take into account mortality of the foals that would be expected to be at least one-fourth, or 25% and is often ca. 50%, nor does it take into account the mortality rate of the adult and sub-adult horses that would be expected to be 5% to 10% (see Gregg, LeBlanc, Johnston 2014). This calls into question the frequent claim by BLM officials that wild horses increase by 20% or more per year. A further examination of the number of yearlings in the Pine Nut wild horse population would give a factual basis for determining the annual foal survival rate.

### **Time Observations**

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8:14 AM: Take off from Stead Airport, elevation: 5,046 feet a.s.l.

Flowing from Lake Tahoe through Reno then emptying into Pyramid Lake, the Truckee River is very low. This has been the driest winter on record. There is very little snowpack in Sierra Nevada mountains and much of this, as other, mountain range’s water-absorbing soils are damaged & deteriorating, including those of the Pine Nut Mountains. Photos.

8:24 AM: Photos of dry Washoe Lake, just north of Carson City. This is an important wildlife, especially migratory waterfowl stopover. Photos also of Mt. Rose & Slide Mtn. to west.

8:31 AM: Flying over Carson City airport. Photo of Pine Nut Mountains to SSW. Some haziness. Temperatures were near freezing at higher elevations above 4700’ elevation last night.

8:32 AM: Location: N 39 deg. 11.96 min. Lat.; W 119 deg. 43.06 min. Long. 5,471’ elevation of plane. Crossing U.S. Hwy. 50.

8:34 AM: Flying over Deer Run Road. Photos of Carson River just to west. River definitely quite low for mid spring, when it should be at its highest. The problem is not just with the snowpack but also with the deterioration of soils in the mountains, particularly topsoils, which are being damaged or lost for a variety of reasons including livestock, roads, trails, off-road vehicles, enormous mining activities, etc. This situation applies to most mountain ranges in Nevada, and, I daresay, the West.

8:35 AM: Begin Straight Line Transect and Census of wild horses in Pine Nut Herd Management Area (HMA) as well as inclusive greater Herd Area (HA). (See Maps. Photos.) Pass over Brunswick Canyon, later El Dorado Canyon.

8:37 AM: N 39 deg. 4.9 min. Lat.; W 119 deg. 39.89 min Long. 6,924’ plane elev. Observe extensive Sagebrush “Shrub-Steppe” ecosystem & Pinyon-Juniper Woodlands. Most of the latter is young, since it is recovering from the earlier Comstock mining period when nearly all these trees were felled to stoke the ore smelters as well as for expanding ranches, farms & the firewood and other needs of expanding white settlements. No wild horses seen. Photos. Observed some trails of wild horses, deer, coyotes wending down north-facing slope toward Carson River, but no wild horses seen. Intensive predator elimination programs have been executed in the Pine Nuts dating back for many decades and are

continuing, mainly to benefit public lands grazing sheep and cattle ranchers. Both federal and state agencies co-operate in this. The federal program is now euphemistically given the name of Wildlife Services, and is a largely independent and secretive agency under the U.S. Department of Agriculture (see Knutson 2012 & 2015) Parallel agencies exist at the state level under the Nevada Department of Agriculture, which collaborates and receives federal support.

8:42 AM.: N 39 deg. 11.14 min. Lat.; W 119 deg. 38.91 min. Long. Several cattle observed near reservoir just south of town of Dayton.

8:43 AM: N 39 deg. 11.5 min. Lat.; W 119 deg. 38.05 min. Long. South of Carson River, observe a few major wild horse trails leading toward river. Extensive, small-sized Pinyon-Juniper Woodland observed. Woodland becoming sparser on bush-covered talus slopes inclining to north. Johnston states that the type of low-growing sagebrush (Low Sagebrush & its Black Sagebrush subspecies) we are viewing is not preferred by the Greater Sage Grouse, a Threatened candidate species of concern for state & federal agencies, but rather the Big Sagebrush (see Species List). She applies this observation to the great majority of the Pine Nut Range we flew over, which she doesn't consider to be prime Greater Sage Grouse habitat. (see Species List re: species here named).

8:48 AM: N 39 deg. 10.35 min. Lat.; W 119 deg. 35.01 min. Long. Point 3 of planned flight. Sparse Pinyon-Juniper Woodland. No wild horses spotted. Evidence of recent wildfires & slowly recovering vegetative regrowth.

8:52 AM: N 39 deg. 10.35 min. Lat.; W 119 deg. 35.01 min. Long. Over El Dorado Canyon, no wild horses observed. Before I had seen bands here dating back to my boyhood. Am alarmed by their absence. Some ruddy palominos with flaxen manes were here for generations – as well as the powerful lineage of white stallions which for generations were always named “Phantom” by locals.

8:54 AM: Flying over “D” made with applied lime on hill south of Dayton, over Carson River and an exuberant grove of Fremont's cottonwoods, leafing out now at springtime. Appears fences are restricting wild horse access to the river. This situation could become serious as the dry season progresses. Sources of pollution into the river are mine tailings dating from 19<sup>th</sup> C, especially mercury-containing leachates. The latter contaminates the fish of the Carson River to a dangerous degree and is linked to a high incidence of cancer in humans. Also there are septic systems leaching into river associated with human residences and businesses. Recent decades have seen great human expansion in this part of Nevada, including especially Lyon County, but also parts of Storey County and Carson City County, Nevada's capitol.

8:58 AM: N 39 deg. 9.21 min. Lat.; W 119 deg. 33.36 min. Long. Observe several major wild horse trails describing home ranges of various mustang bands, but no wild horses. They are probably going up elevation with the warming spring temperatures (temperatures have been unseasonably warm throughout this past winter and remain so now during the spring). Reported illegal captures & removals are also occurring, as testify many local residents who appreciate & seek to protect the mustangs. What is called the “Mexican Mafia” seems to be taking many of the wild horses for use in their *charreados* (rodeos) after which many are hauled off to killer buyers in Fallon, or to other dubious destinations.

According to reports, many are simply captured & spirited over the border into Mexico several hundred miles to the south, mainly to be slaughtered. A way station in Las Vegas is reported to handle many of these pitiful mustangs as well as burros. Also, reports have been received that the Nevada Department of Agriculture (NDOA) has been picking up many wild horses that cross over from the Pine Nut Range to the north of Hwy. 50. These should be protected as legal wild horses of the Pine Nut HMA by BLM! This has been occurring indiscriminately and at the drop of a hat whenever some minority registers a complaint against the wild horses with NDOA. Most of these are going to kill buyers at auctions in nearby Fallon, according to witnesses. Many bands that have been here for generations are observed no more. Also unhealthy effects attributed to PZP and other interferences with the reproductive systems of the wild horses, including GNRH injections, are reported by locals. These include open, suppurating sores that will not heal & extensive loss of hair, unsightly skin rashes, loss of tail and mane, emaciation, etc. I have filmed & photographed some of the affected wild horses of this area, especially on the SW slopes of the Flowery Range.

... Nearing Point 5 of flight plan.

9:01 AM: N 39 deg. 7.45 min. Lat.; W 119 deg. 31.5 min. Long. West of Rawe Peak & its microwave transmission/repeater towers. Small Mule Deer herd of several seen. Golden Eagle below, soaring over sagebrush escarpments, hunting. No wild horses seen.

9:05 AM: N 39 deg. 12.19 Lat.; W 119 deg. 30.28 min. Long. Band of 4 wild horses observed far to the east at Old Como Road Pass. This sits atop a saddle on a broad portion of Pine Nut ridge. Band is grazing in open space. Same ones I observed twice within the past year. Band is just south of Rawe Peak. The Old Como Road is also called the Ft. Churchill-Wellington Back Country Byway; and the ruins of an old stone stagecoach waystation occur here. This recently burned area (including much PJ Woodland) is profuse with grasses that the wild horses are grazing, while at the same time converting to humus-rich, moisture-retaining soils, thus preventing future wildfires & in more ways than just this one. Cheat grass is also present, but by doing what I just stated I have reason to believe that these wild horses will counteract this non-native's monopolization of habitat (see Species List). Plane is west of mustangs.

9:10 AM: Near Point 6 of flight path. Turn in path. Band of 3 wild horses seen. Grazing in open space.

9:13 AM: Over high ridge of Pine Nuts. No more wild horses seen in vast area inspected. Thick Pinyon-Juniper stands. Though some of the wild horses could be concealed amid the Pinyons & Junipers, the relative absence of wild horses in this generally open and visible habitat is alarming!

9:15 AM: Flying south along Pine Nuts to Point 7 on flight path.

9:16 AM: Another band of 3 wild horses seen. One is whitish gray, another brown, & another blackish brown. In open space, grazing. Near sheep rancher cabin with natural spring & meadow, near Sunrise Pass Road. Considerable green grass observed here. Mineral Peak to west. Mt. Como to south. Extensive burn area. Many thousands of acres burned in past 5 years in Pine Nut Mountains, and more burns each year. Severe reduction of wild horse population could have led to these fires, since these animals are excellent dry fuel reducers and reach remoter, steeper, and less accessible areas than do livestock.

9:18 AM: Some extensive patches of Mountain Mahogany survived the fire at higher elevations, esp. over 7,500', which we observed from plane & photographed. These are excellent food sources for wildlife species such as Mule Deer, Bighorn Sheep, & Wild Horses.

9:19 AM: More observation of extensive burn area, particularly noticeable on abrupt east side of Pine Nut Range. Vast, open, and highly visible areas encompassing hundreds of square miles were inspected during our flight with very few sightings of the Pine Nut's scant remaining wild horses.

9:22 AM: N 38 deg. 55.1 min. Lat.; W 119 deg. 27.33 min. Long. Finally I spot one lone, light grey horse, possibly an older stallion, ca. 13 & ½ hands high. Lanky. Grazing in open highland meadow just below ridge on east side of the divide. Horse takes off running as plane flies overhead. Attempt to photograph.

9:28 AM: N 38 deg. 51.41 min. Lat.; W 119 deg. 29.73 min. Long. Band of 8 wild horses observed, including one foal, nearing Mt. Siegel & Slater Mine highland meadows, traditional summering area for a significant portion of Pine Nut wild horse herd. Photographs attempted. These wild horses were grazing & did not run off. As plane neared them, they lifted their heads & were on alert, especially the band leader/protector stallion & sagacious lead mare. Also, 8 light-colored deer-like animals were spotted on a ridgetop in the far distance to the west, which bore all signs of being Bighorn Sheep. They were smaller than Mule Deer.

9:29 AM: Band of 5 wild horses including one foal spotted. Mostly bright chestnut-brown coats. Unlike the band of 8 just spotted, this one was frightened by the plane & immediately ran off. Grazing in a highland meadow, they were well muscled & in good condition, estimated Henneke scale 4's and 5's. Their coats were sleek and shiny, indicating fine health. Same general area as band of 8. Adequate, grassy forage in meadows observed. "Good spring green-up!" as locals say. Photos.

9:36 AM: N 39 deg. 0.59 min. Lat.; W 119 deg. 30.08 min. Long. Several exuberant highland springs observed with lush green grass & shrubs, among which were wild rose & desert peach, as well as the more common bitterbrush (see Species List). These springs were more provident of water. This is in part due to deeper ravines found here. These reduce evaporation caused by the impinging rays of the sun. And they are more sheltered from the wind. Off to the east, Red Canyon & Burbank Canyon are prime examples. Similar canyons are found in the Burbank Canyon Wilderness Study Area. Springs & riparian meadows were also observed on the west side draining to the major Pine Nut Creek & including Blossom, Thompson, Dutch, & Lone Pine Canyons. These springs should be protected for all wildlife, including the wild horses, & not allowed to be monopolized, fenced off, & depleted by ranchers, miners, farmers, local residents, etc. Some of these were fenced. One black wild horse was observed standing in the shade of a Juniper tree (by Johnston). Near Mineral Peak.

9:40 AM: Several trashy homesteads with old abandoned vehicles, fallen sheds, old dilapidated trailers, etc., left to deteriorate in the elements. Such is a source of water-, soil-, and even air-pollution. Photos. However, several healthy springs were observed here, with exuberant grass, shrubs, & even trees, including cottonwoods, willows, & gooseberry bushes.

9:48 AM: Overview Photo taken of Pine Nut Mountains ecosystem south of Mt. Siegel including Oreana Peak, Burbank Canyon Wilderness Study Area, and adjacent terrains.

9:52 AM: N 38 deg. 57.17 min. Lat.; W 119 deg. 35.97 min. Long. Band of 12 wild horses, including 2 newborn foals, spotted. Mostly Bay coloration (reddish brown with dark mane, tail, & leg extremities). East of Fish Spring Flat & its human community. Horses were grazing. (Photos by J. Johnston.) Also photos of healthy springs & riparian habitat that were observed here, some fenced. Wild horses should be assured access to the springs and creeks on public lands within their legal Herd Area.

9:56 AM: Flying over large stretches of west-sloping, gentle escarpments with dwarf sagebrush & rocky soils, also many exposed soils. Much evidence of livestock overgrazing & ground abuse by Off-Road Vehicles, water draining & diversion by people. Minden Reservoir photographed. Definitely an abused ecosystem! Off Road Vehicle, aka Off Highway Vehicles (OHV), abuse is almost entirely without check.

9:59 AM: N 39 deg. 3.2 min. Lat.; W 119 deg. 37 min. Long. Opposite Sunrise Pass Road. Photos. Though inspecting this vast area, we observed no wild horses. Edge of human-inhabited portions of Carson Valley, Douglas County Nevada, including Johnson Lane residential area with some businesses & light industries. Wild horses used to judiciously inhabit these slopes, including beautiful bands with palominos as well as bays.

10:05 AM: N 39 deg. 14 min. Lat.: W 119 deg. 41.59 min. Long. On last transect line of flight in Pine Nut Mountain Wild Horse Herd Area. (Photos of much ORV, 4WD, off-terrain vehicle destruction of ecosystem.)

10:07 AM: ORV destruction photographed. Major habitat destruction, large dusty areas without topsoil. These cause major air & water pollution. Though a serious problem, BLM seems to be doing little to rectify this. We flew to the east of the Johnson Lane community.

10:10 AM: N 39 deg. 6 min. Lat.; W 119 deg. 42.55 min. Long. Plane reaching Point 13 on flight path. No wild horses observed. They used to live here decades ago, both before & after the Wild Free-Roaming Horses and Burros Act of 1971. Where have they all gone?! How?! When?! Where?! Why?!

10:12 AM: N 39 deg. 8.29 min. Lat.; W 119 deg. 43.06 min. Long. Fly to west of Deer Run Road & Saddle Ranch Nevada State Park along Carson River. No wild horses observed. In 2011-2012, BLM removed all the Deer Run wild horses due to a few neighbor's complaints & in spite of the vast majority of this unincorporated community's favoring the wild horses & their willingness to solve the minor problem with a few fences, signs & public education. Yet when it comes to the wild horses, officials will maintain that there is a drought, the wild horses drink too much water, & that they're going to die of thirst. All the while, the prodigious squandering of water by farmers, ranchers, golf courses, homeowners & their gardens, etc., is not questioned. Unfair! With some enlightened leadership, we could easily solve this problem, & wild horses could again return to this area – part of their original 1971 HA. Photo of profusely irrigated pastures & golf courses in Carson City area.

10:15 AM: N 39 deg. 13.07 min. Lat.; W 119 deg. 44.06 min. Long. Photo of southern Virginia Range, open-pit mines, ORV abuse of land, etc. Wild horses not seen here, perhaps recently removed by Nevada Dept. of Agriculture. As a consequence, expect a catastrophic fire!

10:18 AM. Photos of Washoe Valley, Washoe Lake. Very dry. Only Little Washoe Lake at northern end has any considerable water. This relates not only to low precipitation but also to substantial abuse of Virginia Range by ORVs, mines, roads, etc. All this translates into soil & vegetation deterioration.

10:20 AM: Golden Eagle observed flying, eastern Washoe Valley.

10:32 AM: Landing back at Stead Airport north of Reno, NV. Excellent flight. Little turbulence, but winds starting to pick up.

**Methodology:**

The aerial transects were randomly selected and flown to cover both the burned and un-burned portions of the Pine Nut Herd Area. A total of 164 miles were flown on 13 transect lines surveying approximately 40% of the area. The average flight height above ground level was 800-1,000 feet with an adjusted transect strip of 0.31 to .41 of a mile on each side of the plane. The transects covered the entire Pine Nut Mountains Wild Horse Herd Area (HA) and contained Herd Management Area (HMA).

**Pine Nut Herd Mountains Herd Area/HMA**

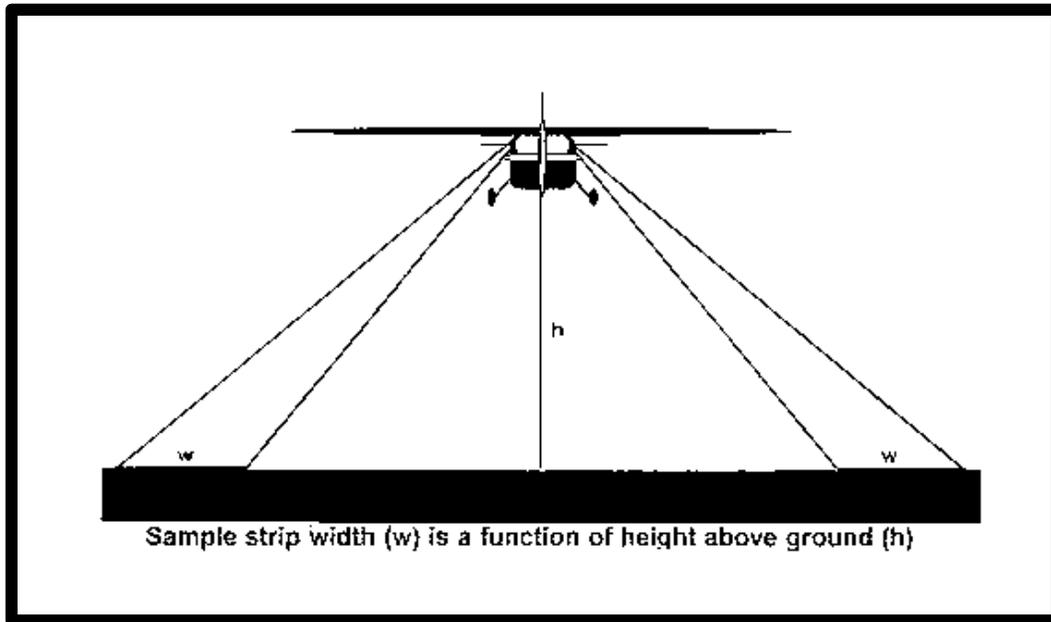


**Flight Map**



There are several scientifically accepted aerial methods to estimate wildlife populations within a large area. This survey used the aerial, straight-line-strip-transect method for estimating the relative density of the wild horse population. The transect strip establishes a density ratio that is used to estimate a low to high population range. This survey was adapted from the methodology commonly used for estimating Pronghorn Antelope and other species of wildlife (Guenzel 1997).

It should be noted that conducting a flight that samples a variety of habitats with adequate transect spacing over a single day provides greater accuracy and minimizes concerns about equid movements that could lead to multiple counts of the same individuals.



**Aerial Transect Technique**

**Aerial Strip Transect Census Results:**

During the aerial survey, a total of 36 wild horses were counted along the 164 miles of transect strips flown within the Pine Nut Mountain Herd Area boundary. By using the relative density of the wild horses observed along all transects, it is estimated that there are between 92-119 wild horses remaining in the Pine Nut Wild Horse Herd Area including those in the Herd Management Area on the north side. (Analysis performed by Johnston.)

Taking the mean of 105 wild horses and dividing it into the total HA area of 182,668 acres, or 285.4 square miles, yields a population density in the HA of one individual wild horse per 1,740 acres, or 2.72 square miles. This is same as a density of 0.41 horses per square mile.

Seven groups of wild horses were observed: 1 band of 4; 1 band of 3; 1 band of 3; 1 lone wild horse, thin gray; 1 band of 8 including 1 foal; 1 band of 5 including 1 foal; 1 band of 12 including 2 foals. These occurred both in the HMA and the greater HA to the south.

Of the 36 wild horses observed, 4 were foals, i.e. "young of the year."

Therefore, a reproductive rate of 4 foals divided by 32 adult or sub-adult horses = 0.125, or 12.5% reproductive increase by birth. Please note that this does not take into account mortality of the foals that would be expected to be at least one-fourth, or 25%, nor does it take into account the mortality rate of the adult and sub-adult horses that would be expected to be 5% to 10%. This greatly differs from BLM's reports that the wild horses are annually increasing at 20% or more. Given the above figures, the Pine Nut wild horse population may actually be decreasing, especially given the many illegal roundups and killings that are taking place, the many PZP-vaccinated mares, and continuous efforts by wild horse opponents to further reduce this old historic herd.

**Habitat Inspection Results:**

Extensive burned areas in Pine Nut Mountains were observed during the flight along with extensive erosion due to uncontrolled Off-Road Vehicles including 4WDs and motorcycles. Also, many redundant roads were observed and extensive mining activities with little rehabilitation. Very few wild horses were seen in the Pine Nut Wild Horse Herd Management Area and the greater Pine Nut Herd Area. The Carson City BLM District and its Sierra Front Range BLM Field Office have authority to manage this area, and it is to be hoped that their Revised Resource Management Plan that is soon due to be completed will rectify this situation.

**Background on Pine Nut Mountains with Timely Commentary:**

The Pine Nut Mountains are ca. 40 miles in N-S length and 10-20 miles in E-W width. Vertically this range extends from the valley floor (including Artesia Lake on the east side) at ca. 4,500' to the highest peaks at ca. 9,500' for a 5000' elevation relief (see McLane 1978, p. 72). Such relief divided a multitude of times in all the various drainages of the Pine Nuts affords a manifold niche space and argues for many more wild horses here than the genetically non-viable level set by the BLM of merely 119 to 179 individual horses. Now is the time to protest this and get a reinstatement of the wild horses throughout this vast range and their original legal 1971 Herd Area, not let them remain restricted to the northern half of the range, i.e. the HMA.

At 9,450' elevation, Mt. Siegel is the highest peak in the Pine Nut Mountains. This range is very complex. It has a much dissected topography, diverse soils types, slope aspects, and the resultant plant and

animal species filling diverse niches that would be expected in such terrain. It is a great watershed and wildlife habitat, but has been subject to draconian predator control for many years, excessive wild horse elimination, intensive manipulation to satisfy mule deer and upland game bird hunters (some gallinaceous guzzlers were observed during the flight), extensive mining operations, such as resulted in the Superfund site in the southern Pine Nuts (DaNite Mine), extensive chaining of Pinyon-Juniper Woodlands to favor livestock grazing (both cattle and sheep), extensive chain-saw felling of Pinyon and Juniper trees for firewood, posts or just to eliminate them. Yet, the reason the Pine Nut Range is so called is its exuberant Pinyon Pine forests (*Pinus monophylla*). These forests are a great treasure but have been overly reduced, often by the out-of-control wildfires. The Pinyon nuts were a mainstay of the native Washoe Indians, as well as Northern Paiutes. The Washoe's dwellings were typically associated with sheltering Pinyon as well as Juniper groves, as is documented in the M.A. thesis of D. J. Hagerty (Archeology and Ecology in the Pine Nut Mountains, Nevada, Univ. Calif. Davis, June, 1970).

In earlier years extensive wildfires were allowed by BLM or early settlers to burn, eliminating some of the oldest Pinyon and Juniper trees in this region, some of which were several centuries old, even dating to over 1,000 years according to annual growth ring counts. There has also been illegal tampering and relocation of survey corners and lines by white settlers in order to procure areas with better soils and water – and this is a situation that remains uncorrected to this day! One large fire I remember killed thousands of the most prodigious Pinyons and Junipers. It occurred in the southwestern portion of the Pine Nut Mountains and extended toward the Sierra Nevada Mountains. This was during the mid-1980s. And there have been other similar ones since.

#### **Urgent Points of Concern:**

**Major Ecological Disturbance Factors:** One major Ecological Disturbance Factor that should be addressed immediately is Off Road/Highway Vehicles in the Pine Nut Mountains (see Ecological Disturbance section of my report). Many dirt roads and illegal ORV/OHV trails are heavily impacting the Pine Nut Mountain ecosystem. The “freedom to destroy” this magnificent ecosystem is no virtue; and our government officials must act honorably to restrict this ongoing abuse through conscientious vigilance, apprehension, and punishment, obliteration of unnecessary roads and trails, etc. Much of the damage is conveniently blamed on scapegoats, especially wild horses, yet is, in fact, being perpetrated by people and their many nature-destroying machines including so-called quads, four-wheel-drive vehicles, motorcycles, and the like. Serious examples of soil erosion are also attributable to cattle and sheep overgrazing in the Pine Nut Mountains, as well as to pervasive mining activities. Areas of sheep encampments have remained denuded of vegetation for over a century. Hunting and trapping are also having a serious impact, as well as the elimination of natural predators such as puma and coyote. The trampling of spring sources and riparian habitats and the fencing off of such are also serious.

**PZP:** The PZP vaccination of Pine Nut Mountain wild mares is already having an impact on the wild horse population here, resulting in more unrest, including social disruption, and out-of-season births. This is affecting population recruitment and general wild horse fitness and survival in a negative way.

**No Fencing Restrictions Between HA/HMA and Bordering Properties:** Since there are no fences separating the HA from the HMA, it cannot be expected that wild horses will adhere only to the HMA on the northern end of the Pine Nut Mountains. Officials should reinstate the original HA and make it all an HMA, meaning: home to wild horses. They should also increase the AML to a more viable level.

Cooperative agreements should be set up with private property owners, especially prevalent in the southern half of the HA, in order to accommodate a larger, more viable wild horse population level with a corresponding complete and viable habitat good for the year-round needs of the wild horses.

***Migration out of HA due to Bison Fire:*** After the Bison wildfire in 2013, an extensive portion of the Pine Nut Mountain vegetation, including Pinyons and Junipers as well as Sagebrush-Steppe, were incinerated. This led to a migration out of the scorched area by many of the remaining wild horses. But as the scorched ecosystem is restoring itself, wild horses are returning and their affects are aiding this natural regeneration. Their major contributions include soil building and intact seed dispersal by means of feces.

***Removal of Horses Outside HA:*** Many wild horses have been removed from land adjacent to the Pine Nut Mountains, including from the Buckskin Range just to the east. Also a considerable number has been removed from the north side of the Pine Nuts, as they move onto lands controlled by the Nevada Department of Agriculture (NDOW). These substantial reductions have occurred recently and should be taken into full account when considering further limitations on the population.

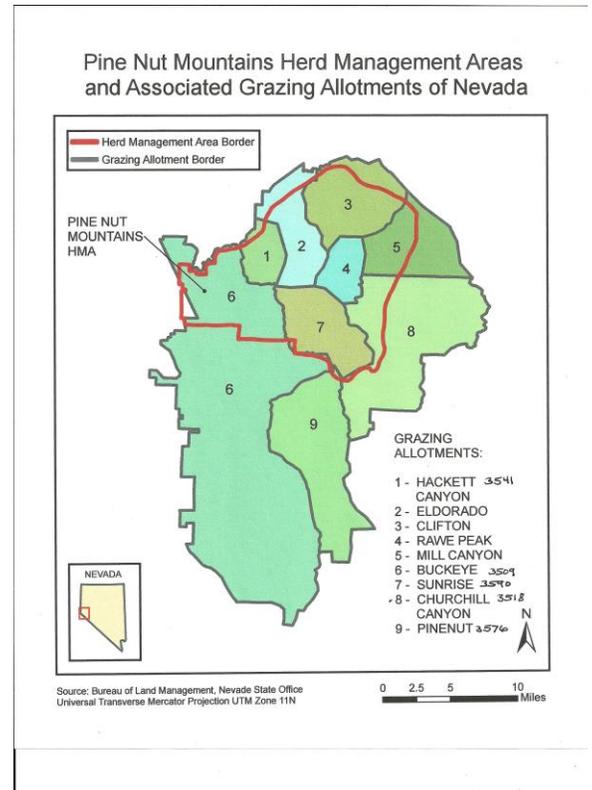
***Resource Limits on Population Due to Drought and Die off due to Environmental Stress:*** Serious impingements upon the Pine Nut Mountain wild horses and other wildlife are already taking place due to the drought conditions this part of Nevada has been experiencing for at least four years and the environmental stress this serious situation is causing. Though this is a form of natural control that will inevitably entail adjustments, we should bear in mind that human exploitation and alteration of the natural habitat is major in the Pine Nut Mountain ecosystem. This affects the forage, water, and shelter that are vital to the wild horses and other wildlife. For this reason, a genuine effort should be made by people to release their monopolization of many of the natural water sources, forage, shelter & other habitat components, including by livestock but also by hunting, mining, recreational, as well as urban and rural residential interests. This will allow the wild horses to more fully fill their niche, which will have many restorative effects on the ecosystem. This would comply with the core intent of the Wild Free-Roaming Horses and Burros Act – that should now be celebrated during its 44<sup>th</sup> anniversary.

***Resource Limits on Population Due to Habitat Fragmentation – i.e. Livestock Fences***

As shown in the map on the right, the Pine Nut HMA is fragmented by numerous livestock grazing allotments. Fragmenting the HMA into fenced pastures would cause an inability for the Pine Nut wild horses to intermingle for genetic viability as well as limit their legal resources – both forage and water.

Fences erected to rotate cattle and sheep from one "pasture" to another prevent wild horse herds from healthily inter-breeding and can quickly cause a genetic bottle-neck and eventual extinction. A variety of human land uses, including livestock fences, fragment intact natural landscapes into smaller patches of habitat. These patches become isolated "islands," and depending on the type and degree of fragmentation, this process can have a very detrimental effect on a population, or even an entire species.

The size of the fragment will influence the ability of these species to persist in the fragment. Small fragments of habitat can only support small populations of plants and animals and small populations are more vulnerable to decline and extinction. Minor fluctuations in climate, resources, or other factors that would be unremarkable and quickly corrected in large populations can become catastrophic in small, isolated populations. Thus, fragmentation of habitat can become an important cause of the extinction of populations and even entire species. The Wild Free-Roaming Horse & Burro Act mandated that in their legal areas wild horses & burros maintain their "free-roaming" life style. This is integral to the core intent of the Act. But the major fencing of grazing allotments, such as we observe in the Pine Nuts, is basically preventing the wild horses from realizing their own natural rest rotation of foraging. It appears the wild horses are being set up for failure.



### Gardening

In my recent field Ecological Disturbance investigations in the Pine Nuts (see Ecological Disturbance report), one exciting observation I made concerns the wild horses' natural gardening of the forage species they were eating. As I observed more distinctive bands, even in areas that were generally degraded due to livestock overgrazing, vehicles, or mining, it occurred to me that their patchiness of grazing had a sound reason. To wit: in many places they were concentrating their grazing on already senescent edible plants while leaving alone other individuals of the same species but ones that were in their prime. As a consequence, these were able to fully mature and set seed. My hypothesis is that this behavior expresses an ancient wisdom, aka instinct, by which the horses preserve the plants that sustain them over the generations, even in marginal ecological conditions in which it might be expected that they would destroy all their food sources. I would like to test this hypothesis by setting up a study design and carrying it out. It has been noted that some predators, such as wolves, also preserve populations of their prey species in a similar manner.

**Final Statement, Further Recommendations, and Important Genetic Information:**

BLM should cease reducing and compromising the overly diminished Pine Nut wild horse herd. They should be allowed to occupy their full, legal Herd Area along the entire Pine Nut Mountain Range from just south of Dayton to just north of Topaz Lake. And the allotment fences should not be allowed to divide their population. If so allowed they would naturally rest rotate their foraging pressure and at the same time aid the Pine Nut ecosystem in recovering from extensive wildfires, ORV, mining and livestock overgrazing damage. They would restore soils, disperse viable seeds of a greater variety of plant species for successful germination, and prevent catastrophic wildfires by eating dry, coarse, flammable vegetation, often in areas where livestock cannot reach. As post-gastric digesters, the wild horses would lend balance to an ecosystem that has a lopsided overabundance of ruminant-digesting herbivores, i.e. cattle, sheep, deer, etc., and very few natural predators to control their numbers in a way that also contributes to their survival fitness.

PZP vaccination should be stopped, as this would ultimately lead to a dysfunctional & inbred, dead-end wild horse population. The Pine Nut wild horses are far from filling their ecological niche; & their numbers must certainly exceed 1,000 as a minimum. The principles of Reserve Design should be employed for naturally self-stabilizing populations (see Ch. IV of my book: The Wild Horse Conspiracy). The recommendation of the IUCN Species Survival Commission Equid Specialist Group for a viable population of wild equids in the wild is 2,500 individuals (Duncan 1992, p. 5).

In his report on the genetics of the Pine Nut Mountain wild horse herd, Dr E. Gus Cothran, found their genetic variability to be below the “critical risk level,” which is alarming to all of us who care about these wild horses & their future. This unique & historic herd should not be further compromised, but rather augmented to a higher population level in a greater & less compromised habitat. The uniqueness of this herd relates not only to its Spanish mustang heritage but also to its admixture of horses related to the Exmoor Ponies of SW England. And this relates to the 19<sup>th</sup>/early 20<sup>th</sup> century use of small horses/ponies to haul out ore carts from the silver mines of the Comstock Mining District in & around Virginia City just to the north of the Pine Nut Mountains. (Many of these horses could have been brought over by Cornish miners.) The Exmoor pony is considered the purest European wild horse lineage extant today. This fact gives even more reason to restore what is left of the Pine Nut wild horses. Also, according to Cothran’s study, the Pine Nut horses are genetically similar to the Criollo horses of Argentina and Brasil. And of the 23 Nevada wild horse herds examined, they are the most distinctive. (See Cothran 2004.)

The Pine Nut wild horses mean so much to so many ordinary citizens not wrapped up in vested-exploitive-interest politics. These highly evolved, returned North American natives are a significant part of their Quality of Life, and these citizens have a right to be heard with respect and consideration by our public officials!

Now is the time to protest the “managing for extinction” of our unique Pine Nut wild horses. They must be reinstated throughout this vast range – their original, legal 1971 Herd Area – and not remain restricted to the northern half of the range, i.e. the HMA. Furthermore it is imperative that their Appropriate Management Level be elevated to a long-term viable level.

**Acknowledgements:**

My gratitude to pilot [REDACTED] fellow spotter [REDACTED], LightHawk flight arrangers for their

indispensable help. Most of all gratitude is expressed to Friends of Animals for its vital and caring support and encouragement for this long-overdue project. May our efforts lead to a better world for all!

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## Pine Nut Mountains Species List, Western Nevada (with particular reference to wild horses)

Observed/Researched by [REDACTED], [REDACTED] through in-field observations & search of literature (see Bibliography) from March-June, 2015. July 5, 2015

**General Note:** Pinyon-Juniper (PJ) Woodland is the most prevalent ecological community in the Pine Nuts and is generally found above 5,000' elevation. Junipers often extend below the PJ woodland to the valley edge at ca. 4,000'. Pinyons occur above PJ woodland in some areas reaching above 7,000'. Densities of Pinyon can be > 400 per acre in Churchill Canyon and other areas in the northern Pine Nuts. Native Americans had most of their dwellings in the dense Pinyon or PJ forests (Hagerty 1970). Sagebrush-Rabbitbrush communities, especially Big Sagebrush are the second most common in the Pine Nut Mountains. The other community found here is the Salt Desert Scrub in the very driest of areas with shadscale and saltbush.

### Plantae

#### Common Name Latin Name Description, Comments

##### Bushes:

**Big Sagebrush**, *Artemesia tridentata*. Common bush, provides shelter, food. Wind pollinated. Tiny seed was ground into meal providing nourishment for centuries for Native Americans.

**Low Sagebrush**, *Artemesia arbuscula*. Provides shelter, food.

**Black Sagebrush**, *Artemesia arbuscula ssp. nova*. Provides shelter, food.

**Shadscale**, *Atriplex confertifolia*. In drier areas, often with alkaline soils. Thorny.

**Four-Wing Saltbush**, *Atriplex canescens*. Lower, hotter habitats. Important browse plant. Seeds used medicinally by Native Americans and ground into a meal for food.

**Curleaf Mountain Mahogany**, *Cercocarpus ledifolius*. Important highland bush for food, shelter. 5,000-10,000' elev.

**Golden/Rubber Rabbitbrush**, *Chrysothamnus nauseosus*. Common bush. Shelter. Sweet odor. Bright yellow flower. All elevations. California Sister butterfly, *Adelpha bredowii*, pollinates.

**Rabbitbrush**, *Chrysothamnus viscidiflorus*. Similar to above.

**Nevada Dalea**, *Dalea polyadenia*.

Indian/Mormon Tea, *Ephedra nevadensis*. Green tubular stems. Food, shelter. Tonic tea.

**Winterfat**, *Erotia lanata*. Important food for herbivores. Low lying bush. Silvery green, woolly.

**Spiny Hopsage**, *Grayia spinosa*.

**Squaw Bush**, *Rhus trilobata*. Food, shelter. Important to Native Americans, medicine, baskets. Bird habitat. Declining due to livestock overgrazing, ecological destruction.

**Willow**, *Salix geyeriana*. Important riparian bush. Habitat for many species. Native Amer. used.

**Black Greasewood**, *Sarcobatus vermiculatus, var. Baileyi*. Alkali sink to PJ Woodland. Shelter.

**Bitter/Deer/Antelope Brush**, *Purshia tridentata*. Important shelter, food. Bright yellow, sweetly smelling flower in early spring. Tall, to several feet high.

**Cliff Rose**, *Cowania mexicana Var. Stansburiana*. 3,000 to 8,000'.

**Thorny Horsebrush**, *Tetradymia spinosa*. To 7,200'.

**Yerba Santa**, *Eriodictyon angustifolium*. Medicinal.

**Wax/Squaw Currant**, *Ribes cereum*. Excellent food, shelter, for variety of species. Edible.

**Desert Peach**, *Prunus Andersoni*. Flowers April-June. Pretty, fragrant pink flower. Thorny. Often takes hold in areas of disturbed soils, as flood washed areas. Produces little peach. To 7,000'.

**Snowberry**, *Symphoricarpos Parishii*. PJ Woodland. 4,000 to 11,000' elev.

**Prickly Pear Cactus**, *Opuntia phaeacantha*. Observed in flower in several places in Pine Nuts, from low to high elevations. May indicate habitat drying & degradation, hotter temperatures.

**Silk Tassel Bush**, *Garrya flavescens*

#### **Forbs:**

**Palmer's Penstemon**, *Penstemon Palmeri*.

**Bull Elephant's Head**, *Pedicularis groenlandica*. Moist streams, springs & their meadows.

**Western Hawksbeard**, *Crepis occidentalis*. Observed. Yellow flower. Common in Carson Valley.

**Fern-Leaf Lomatium**, *Lomatium dissectum*. Occurs to ca. 8,500' elev.

**Indian Paintbrush**, *Castilleja chromosa*. Hemiparasite, latches onto roots. Herbivore food. Edib.

**Alpine Paintbrush**, *Castilleja nana*. Highland meadows. Mt. Siegel area. 8,000-13,000' elev.

**Great Basin Paintbrush**, *Castilleja miniata*. Along streams & wet places. < 11,000' elev.

**Bridge's Penstemon**, *Penstemon rostriflorus*. 5,000-11,000' elev.

**Scouler's Saint John's Wort**, *Hypericum scouleri*. 5,500 to 10,000' elev.

**Wallflower**, *Erysimum capitatum*.

**Crimson/Scarlet Columbine**, *Aquilegia formosa*. Observed at pool above Hercule Spring. Hummingbird pollinated.

**Alaska Rein Orchid**, *Habenaria unalascensis*. Green inflorescence. Highland meadow.

**Gordon's Ivesia**, *Ivesia Gordonii*. 7,000 – 12,000' elev. Listed as Threatened sp. Mt Siegel area.

**Woolly/Common Mullein**, *Verbascum Thapsus*. Often near Sagebrush, to 8,500' elev.

**Moth Mullein**, *Verbascum blattaria*.

**Prickly Poppy**, *Argemone munita*. Observed in flower frequently, disturbed areas, by roads, etc.

**California Poppy**, *Eschscholzia californica*. To 6,500' elev. Bright golden-orange flower.

**Blazing Star**, *Mentzelia laevicaulis*. Beautiful bright golden yellow star shaped flower. Dry areas.

**Common Madia/Tarweed**, *Madia elegans*. Dry, open areas. Pioneer successional. Pungent.

**Filaree/Clocks/Red Stem/Stork's Bill**, *Erodium cicutarium*. Common in disturbed areas. Exotic.

**White Virgin's Bower/Pipestems/Traveler's Joy**, *Clematis ligusticifolia*.

**Nuttall's Larkspur**, *Delphinium Nuttallianum*. Observed ca. 7,000' in PJ woodland, in blossom. Poisonous to livestock.

**Spreading Phlox**, *Phlox diffusa*, ssp. *subcarinata*. High rocky elevations.

**Stansbury's Phlox**, *Phlox Stansburyi*. Sandy areas, gullies. 5,000 to 10,000' elev.

**Douglas Phlox**, *Phlox Douglasii*. Observed higher elevations.

**Pussy Paws**, *Calyptidium umbellatum*. Sandy ground. To 13,000'.

**Dwarf Onion**, *Allium parvum*. Observed on marginal, rocky soils w/ intense sun, wind exposure.

**Sierra Onion**, *Allium campanulatum*.

**Sticky Geranium**, *Geranium viscosissimum*. Open woods & meadows.

**Yarrow**, *Achillea millefolium*. Observed in disturbed soils.

**Sagebrush Buttercup**, *Ranunculus glaberrimus*.

**Showy Milkweed**, *Asclepias speciosa*. Gravelly, stony habitats mainly < 6,000' elev.

**Desert Milkweed**, *Asclepias erosa*. PJ Woodland. Finely woolly.

**Purple Milkweed**, *Asclepias cordifolia*. Monarch butterfly derives sustenance from milkweeds.

**Rocky Mountain Woodsia Fern**, *Woodsia scopulina*. Rocky crevices in cliffs.

**Mistletoe**, *Phoradendron juniperinum*. Parasite of Utah Juniper, grows on branches. Observed.

**Globe Mallow**, *Sphaeralcea ambigua*. Commonly observed in Pine Nuts. Bright orange flower. Open, dry soils, full sun. Obs. In flower May & June, 2015, many places.

**Dwarf Purple Monkey Flower**, *Mimulus nanus*. Obs. in Sagebrush-Rabbitbrush community.

**Common Monkey Flower**, *Mimulus guttatus*. By Hercule Springs & pool above, other sites.

**Bachelor Buttons**, *Centaurea cyanus*. To 6,500' elev.

**Sego Lily**, *Calochortus Nuttalli* var. *bruneaunis*. Bulb eaten by Native Americans. Observed.

**Leichtlin's Mariposa Lily**, *Calochortus leichtlinii*. Possibly also eaten by Native Americans.

**Rayless Daisy**, *Erigeron aphanactis*. Observed at various open sites throughout Pine Nuts.

**Sunray**, *Enceliopsis nudicaulis*. Sandy, rocky clays/compacted arid soils to 6,000'. Sagebrush.

**Viscid Bullrush/Tule**, *Scirpus acutus*. Observed around springs, dry or flowing creek beds.

**Spike Rush**, *Heleocharis* sp. Observed around springs, dry or flowing creek beds.

**Horsetail**, *Equisetum hymale*, Var. *valifornicum*. Near wet habitats. Ancient plant. Segmented.

**Common Horehound**, *Marrubium vulgare*. Observed dry parched areas. Hardy plant.

**Yellow Mustard**, *Brassica campestris*. Common in severely degraded soils. Pioneer successional.

**Shaggy Milkvech**, *Astragalus malocus*. To 8,000' elev. Occurs in Carson Valley & Pine Nuts.

**Shrubby Cinquefoil**, *Potentilla fruticosa*. 6,000 to 12,000' elev.

**Western Peony**, *Paeonia brownii*. Sagebrush-Scrub. Dry slopes 3,000 to 7,300 ' elev.

**Horsemint**, *Agastache urticifolia*. 6,000 to 9,000' elev.

**Pennyroyal**, *Monardelia odoratissima*. 5,500 to 10,000' elev.

**Ragweed**, *Ambrosia* sp. Degraded habitats.

**Burdock**, *Arctium* sp. Degraded habitats.

**Thistle**, *Carduus* spp. Found in degraded habitats, places stripped of topsoils. Overgrazed areas.

**Knapweed**, *Centaurea* sp. Degraded habitats.

**Yellow Starthistle**, *Centaurea solstitialis*. Degraded habitats.

**Thistle**, *Cirsium* spp. Same as above.

**Dandelion**, *Taraxacum officinale*. Observed where cattle have come in, esp. meadows. Edible.

**Whitetop**, *Cardaria pubescens*. Observed in some sites severely degraded by livestock, ORVs. From Eurasia. Serious invading plant taking over much of West. In mustard family, Brassicaceae.

**Western Salsify**, *Tragopogon dubius*. Disturbed areas.

**Wild Mustard**, *Brassica kaber*. Freq. observed In disturbed areas, degraded by livestock, etc.

**Greenflower Pepperweed**, *Lepidium densiflorum*. Also in degraded areas.

**Tumble Mustard**, *Sisymbrium altissimum*. Degraded areas.

**Common Lambsquarters**, *Chenopodium album*. Disturbed habitats.

**Russian Thistle/Tumbleweed**, *Salsola iberica*. Very pervasive invader throughout the West.

Pioneer successional that can live in very degraded ecosystems. From Asia.

**Field Bindweed**, *Convolvulus arvensis*.

**Field Mint**, *Mentha arvensis*

**Stinging Nettle**, *Urtica Serra*. Disturbed, moist sites. Has seriously stinging tiny hairs that fester.

**Purple Loosestrife**, *Lythrum salicaria*. Spreading invader.

**Plaintain**, *Plantago* spp. Although invader, plaintains provide a nutritious food to herbivores.

**Sedge**, *Carex* sp. Food for grazers.

#### Trees:

**Pinyon Pine**, *Pinus monophylla*. Shelter & food for many species incl. man. 2-year cone cycle. Single needle in sheath. Pine Nut Mtn. famed for its Pinyons. Assoc. w/ Juniper. Bluish green.

**Utah Juniper**, *Juniperus osteosperma*. Shelter & food for many species incl. man. Golden green.

**Fremont Cottonwood**, *Populus Fremontii*. Large tree around springs, creeks, rivers. Important habitat for many species. Leaves turn bright golden during autumn. Cottony seed capsule.

**Quaking Aspen**, *Populus tremuloides*. Higher elevation tree. Shelter. In groves around spring.

**Littleleaf Horsebrush**, *Tetradymia glabrata*. Shelter. Ground stabilizer.

**Western White/Silver Pine**, *Pinus monticola*. Unusual occurrence of this elegant tree in Pine Nuts. More common in Sierra Nevadas. Important food & shelter tree. Fires/Rust threaten this.

**Bristlecone Pine**, *Pinus longaeva*. Mountain tops. Can live > 5,000 years. Very hardy. Occurring at even higher elevations with Global Warming. Shelter. Soil, slope stabilizer.

**Limber Pine**, *Pinus flexilis*. 5,000 – 12,000' elev. Shelter.

**Russian Olive**, *Elaeagnus angustifolia*. Eurasian origin. Common naturalized tree in West. Ripar.

**Ponderosa Pine**, *Pinus ponderosa*, var.. *scopulorus*. Higher elevations.

#### Grasses:

**Indian Ricegrass**, *Oryzopsis hymenoides*. Important food & ground stabilizer. Tiny seed. Elegant.

**Giant Wild Rye**, *Elymus cinereus*. Important food & ground stabilizer. 1' to 3 ½' tall.

**Needle & Threat Grass**, *Stipa comate*. Important food. Common in Pine Nuts. 2 1/2 to 5" tall.

**Bluebunch Wheatgrass**, *Agropyron spicatum*. Food. Obs. PJ woodland. 2 to 3 1/2 " tall.

**Pine Bluegrass**, *Poa scabrella*. Observed. Food for herbivores.

**Sandberg Bluegrass**, *Poa secunda*. Food.

**Annual Bluegrass**, *Poa annua*. From Europe. Brought in by livestock/ranchers.

**Kentucky Bluegrass**, *Poa pratensis*. Same as above.

**Mountain Brome**, *Bromus carinatus*. Important food for herbivores.

**Downy Brome/Cheatgrass**, *Bromus tectorum*. Invasive species thrives on soil degradation. Highly flammable. Epidemic throughout West. Signals livestock overgrazing, ORV's, etc.

**Foxtail Barley**, *Hordeum jubatum*. Not desired by ranchers. Spikelets penetrated skin.

**Squirreltail Grass**, *Sitanion hystrix*. Commonly observed with seed set at many sites. Food.

**White Clover**, *Trifolium repens*. Brought in with livestock. In meadows, riparian habitats.

**Orchard Grass**, *Dactylis glomerata*. Invader.

**Saltgrass**, *Distichlis spicata*. Takes hold in very dry often alkaline areas.

## Animalia

### Vertebrata

#### Class Amphibia

**Great Basin Spadefoot**, *Scaphiopus intermontanus*. Heard in Pine Nuts, 6/26/15 after heavy rain. Glandular boss between eyes. Amazing ability to revive after long periods in dried mud.

**Western/Boreal Toad**, *Bufo boreas*.

**Pacific Treefrog**, *Hyla regilla*. Heard in Pine Nuts near a spring.

**Bullfrog**, *Rana catesbeiana*. And invasive frog from east of Rockies. Kills native frogs. Very aggressive and violent frog spreading throughout West.

**Northern Leopard Frog**, *Rana pipiens*. Near or in Carson River, n. Pine Nuts.

#### Class Reptilia

##### Turtles

**Northwestern Pond Turtle**, *Clemmys marmorata*. Carson River, n. Pine Nuts.

##### Lizards

**Note:** Great Basin is a major center of evolution for lizards, w/ many remaining species.

**Long-Nosed Leopard Lizard**, *Gambelia wislizenii*. Observed.

**Great Basin Collared Lizard**, *Crotaphytus insularis bicinctores*. Observed.

**Northern Sagebrush Lizard**, *Sceloporus graciosus*. Observed Pine Nuts.

**Desert Spiny Lizard**, *Sceloporus magister* ? The one I observed & photographed greatly resembled the **Mountain Spiny Lizard**, *S. jarrovi* of Arizona, New Mexico, & n. Mexico. This bears further investigation. *S. jarrovi* may be reaching further north due to Global Warming.

**Western Great Basin Fence Lizard**, *Sceloporus occidentalis*. Observed many times in Pine Nuts.

**Side-Blotched Lizard**, *Uta stansburiana*. Observed.

**Northern Desert Horned Lizard**, *Phrynosoma platyrhinos*. Ejects blood from portion of eyelid into eyes of pursuers. Eats ants. Helmeted *Triceratops* look.

**Western/Skilton Skink**, *Eumeces skiltonianus*. Obs. Yellow stripe on side, blue tail. Snake-like.

**Western/Great Basin Whiptail**, *Cnemidophorus tigris*. Observed frequently. Very rapid run with long, up-curved, slender tail for balance.

##### Snakes

**Rubber/Rocky Mountain Boa**, *Charina bottae utahensis*.

**Striped Whipsnake**, *Masticophis toeniatus*.

**Coachwhip**, *Masticophis flagellum*. Reddish in color.

**Racer**, *Coluber constrictor*. Eats small mammals, reptiles, insects.

**Great Basin Gopher Snake**, *Pituophis melanoleucus deserticola*. Obs. emerging from hole. Preys on rabbits, hares, rodents.

**Common/California Kingsnake**, *Lampropeltis getulus*. Kills rattlers. 30 to 82" long.

**Western Long-Nosed Snake**, *Rhinocheilus lecontei*.

**Valley Garter Snake**, *Thamnophis sirtalis*. Observed at stream.

**Mountain Garter Snake**, *Thamnophis elegans elegans*.

**Wandering Garter Snake**, *Thamnophis elegans vagrans*.

**Western Aquatic/Sierra Garter Snake**, *Thamnophis couchii couchii*.

**Note:** Pine Nut Mountains & surrounding area appears to be a center of evolution for the **Garter Snakes**, place of intensified speciation/radiation. Bears investigation.

**Night Snake**, *Hypsiglena torquata*.

**Great Basin Rattlesnake**, *Crotalus viridis lutosus*. Observed. Especially venomous. Be careful of this one, especially at night when it hunts or in dark shaded areas under bushes during day, or on rocky ledges in the morning when it suns itself. Its rattle warns of imminent strike. Can kill even a horse, but more likely a wild horse will be the first to detect & warn of it, even stomping it to death.

### **Class Aves (Birds)**

**Canada Goose**, *Branta canadensis*. (both Greater and Lesser subspecies). Common migratory & residential bird in region. Hunted. Grass grazer.

**Mallard**, *Anas platyrhynchos*. Common. Observed.

**Pintail**, *Anas acuta*. Obs.

**Green-Winged Teal**, *Anas crecca*.

**Cinnamon Teal**, *Anas cyanoptera*.

**Canvasback**, *Aythya valisineria*.

**Redhead**, *Aythya americana*.

**American Merganser**, *Mergus merganser americanus*. Dives for fish which catches in long bills.

**American Coot**, *Fulica americana a*.

**Virginia Rail**, *Rallus limicola l*. Streams.

**Killdeer**, *Charidrius vociferous v*. Common. Observed. Broken wing act to lead away from nest.

**Common Snipe**, *Gallinago gallinago*. High aerial display & winnowing sound emitted, evening.

**Spotted Sandpiper**, *Actitis macularia*.

**Wilson's Phalarope**, *Phalaropus tricolor*. Obs. Extensive flight migrations in N. Am.

**Green-Tailed Towhee**, *Pipilo chlorurus*.

**Spotted Towhee**, *Pipilo maculatus*. Observed. Sings a lot. Low flying. Bushy habitat.

**Pinyon Jay**, *Gymnorhinus cyanocephalus*. See my written report. Very important ecologically.

**Scrub Jay**, *Aphelocoma caerulescens*. PJ Woodland. Also caches pinyon nuts & of other trees.

**Steller's Jay**, *Cyanocitta Stelleri*. Caches pine seeds. Mimics Red-Tailed Hawk.

**Clark's Nutcracker**, *Nucifraga columbiana*. Caches conifer seeds. High elevation.

**Bullock's Oriole**, *Icterus Bullockii*. Male: Orange & black. Weaves elaborate hanging nests. Obs.

**Townsend's Solitaire**, *Myadestes Townsendi*. Fine singer. Resembles mockingbird physically.

**Hermit Thrush**, *Catharus guttatus*. Lovely singer!

**American Robin**, *Turdus migratorius*. Observed. Common. Hunts worms. Sings splendidly!

**Sage Thrasher**, *Oreoscoptes montanus*. Sagebrush.

**Evening Grosbeak**, *Coccothraustes vespertinus*. Observed west side Pine Nuts. Exquisite!

**Black-Headed Grosbeak**, *Pheucticus melanocephalus*. Open PJ Woodland.

**Pine Siskin**, *Carduelis pinus*.

**Audubon's/Yellow-Rumped Warbler**, *Dendroica coronata*. Song like that of Junco.

**Cassin's Finch**, *Carpodacus cassinii*. High elevations. Red-listed in Nevada.

**Mountain Bluebird**, *Sialia currucoides*. Higher elevations > 5,000'. Obs.

**Western Bluebird**, *Sialia mexicana*. Observed. Bright blue. Rapid flight.

**Mountain Chickadee**, *Poecila gambeli*.

**Red-Breasted Nuthatch**, *Sitta canadensis*. Climbs on trunks of trees searching insects.

**White-Breasted Nuthatch**, *Sitta carolinensis*. Same as above.

**Pygmy Nuthatch**, *Sitta pygmaea*. Same as above.

**Williamson's Sapsucker**, *Sphyrapicus thyroideus*. Prefers Pinyon forests. Uncommon in Nevada.

**Brown Creeper**, *Certhia americana*. Climbs on trunks of trees searching insects.

**Dark-Eyed Junco**, *Junco hyemalis*. Black head. Observed.

**Bohemian Waxwing**, *Bombycilla garrulous*.

**Cedar Waxwing**, *Bombycilla cedrorum*.

**Western Tanager**, *Piranga ludoviciana*. Observed. Flamboyant, colorful migratory bird.

**Bushtit**, *Psaltriparus minimus*. Obs. PJ Woodland. Faint, but persistent, wispy cry.

**Horned Lark**, *Eremophila alpestris*. Observed frequently. Migrant from Arctic Circle. Fast, in gps.

**American Crow**, *Corvus brachyrhynchos*. Close relative of Raven.

**Raven**, *Corvus corax*. Common. Spreading due to its crafty adaptation to changes modern-day people are causing to the ecosystem. Scavenger.

**Black-Billed Magpie**, *Pica pica*. Observed, nearer to human habitation. Dramatic black & white.

**Greater Sage Grouse/Hen**, *Centrocercus urophasianus*. Threatened candidate. See report.

**Mountain Quail**, *Oreortyx pictus*. Straight head plume.

**California Quail**, *Callipepla californica*. Observed. Runs quickly in single file. Curved head plume.

**Golden Eagle**, *Aquila chrysaetos*. Observed soaring various times. Takes birds, carrion, rabbits, rodents. Majestic! Keen eyesight. Nests in high, inaccessible treetops or cliffs, pinnacles.

**Red-Tailed Hawk**, *Buteo jamaicensis*. Common. Observed soaring, nesting.

**Northern Harrier/Marsh Hawk**, *Circus cyaneus*. Obs. Flitting flight over meadows, search prey.

**Swainson's Hawk**, *Buteo swainsoni*. Migrates to South America. Often dark of plumage. Rare.

**Ferruginous Hawk**, *Buteo regalis*. Observed. Nesting.

**Sharp-Shinned Hawk**, *Accipiter velox velox*. Edge PJ Woodland. Observed hunting quail.

**American Kestrel/Sparrow Hawk**, *Falco sparverius*. Observed flying, hunting, fairly frequently.

**Prairie Falcon**, *Falco mexicanus*. Reported here.

**Violet-Green Swallow**, *Tachycineta thalassina*.

**Northern Rough-Winged Swallow**, *Stelgidopteryx serripennis*. Observed. Graceful flier!

**Bank Swallow**, *Riparia riparia*. Observed. Hunts insects.

**Cliff Swallow**, *Petrchelidon pyrrhonota*.

**Barn Swallow**, *Hirunda rustica*. Obs.

**White-Throated Swift**, *Aeronautes saxatalus*. Observed. Very fast flyer, acrobatic!

**Common Nighthawk**, *Chordeiles minor*. Declining. Feeds on insects at night. Nocturnal.

**Common Poorwill**, *Phalaenoptilus Nuttalli*. Heard 5/26/15. Hunts insects. Nocturnal.

**Belted Kingfisher**, *Ceryle alcyon*. Carson River. Swift flight while hunting fish, frogs.

**Great Blue Heron**, *Ardea Herodias*. Observed in marshy areas. Large. Tree nests.

**Calliope Hummingbird**, *Stellula calliope*. Migratory. Ca. 3" long. Obs.

**Broad-Tailed Hummingbird**, *Selaphorus platycercus*.

**Northern/Red-Shafted Flicker**, *Colaptes auratus*. Observed. Rapid flight. Pecks wood.

**Lark Sparrow**, *Chondestes grammacus*. Complex social behavior.

**White-Crowned Sparrow**, *Zonotrichia leucophrys*. Observed fairly frequently.

**Song Sparrow**, *Melospiza melodia*. Especially found in riparian habitat. Delightful song!

**Ruby-Crowned Kinglet**, *Regulus calendula*. A real gem!

**American Pipit**, *Anthus rubescens*. Migratory. Observed on more than one occasion. Spritely.

**Red-Winged Blackbird**, *Agelaius phoeniceus*. Observed fairly frequently.

**Brewer's Blackbird**, *Euphagus cyanocephalus*.

**Western Meadowlark**, *Sturnella neglecta*. Beautiful song, often in meadows. Observed.

**Loggerhead Shrike**, *Lanius ludovicianus*. Observed impaling lizards, rodents on top posts.

**Canyon Wren**, *Catherpes mexicanus*. Loud song!

**Rock Wren**, *Salpinctes obsoletus*. Rocky slopes. Observed in washes.

**Western Kingbird**, *Tyrannus verticalis*.

**Western Wood Pewee**, *Conotopus sordidulus*. Heard. A nasal "peeyee".

**Pacific Slope Flycatcher**, *Empidonax difficilis*.

**Dusky Flycatcher**, *Empidonax oberholseri*.

**Ash-Throated Flycatcher**, *Myiarchus cinerascens*.

**Willow Flycatcher**, *Empidonax traillii*. Rare. Declining due to destruction of willow, riparian.

**Turkey Vulture**, *Cathartes aura*. Frequently obs. soaring, hunting for dead animals. Red head.

**Great-Horned Owl**, *Bubo virginianus*. Hunts rabbits, rodents. Nests in trees, rocky ledges.

**Barn Owl**, *Tyto alba*. Obs. Feeds on Kangaroo Rats. Nests in rocky crevices. Striking appearance!

**Short-Eared Owl**, *Asio flammeus*.

**Long-Eared Owl**, *Asio otus*. PJ Woodlands.

**Flammulated Owl**, *Otus flammeolus*. Dark eye unusual.

**Northern Saw-Whet Owl**, *Aegolius acadicus*. PJ Woodland.

**Burrowing Owl**, *Athene cunicularia*. Open grasslands. Nests in burrows. Tall, slender. Sensitive to disturbances, livestock overgrazing, ORVs, etc. Declining.

**Western Screech Owl**. *Otus kennicottii*. Observed.

**Band-Tailed Pigeon**, *Columba fasciata*. Observed. Common. Introduced.

**Mourning Dove**, *Zenaidura macroura*. Heard & seen frequently in Pine Nuts. Haunting call!

**Chukar**, *Alectoris chukar*. Introduced from Eurasia. True exotic in North America. Much done by Dept. of Wildlife to promote this popular hunted bird. Displaces similar native N. Am. birds!

**House Sparrow**, *Passer domesticus*. Introduced. Common.

**Savannah Sparrow**, *Passerculus sandwichensis*. Observed.

**Chipping Sparrow**, *Spizella passerina*. Observed.

**House Finch**, *Carpodacus mexicanus*. Observed in bush. Common bird. Reddish feathers.

**American Goldfinch**, *Carduelis tristis*. Observed. Seed eater.  
**Black Throated Gray Warbler**, *Dendroica nigrescens*.  
**Yellow-Rumped Warbler**, *Dendroica coronata*. Observed.  
**Brown-Headed Cowbird**, *Molothrus ater*. Nest parasite.  
**Yellow Headed Blackbird**, *Xanthocephalus xanthocephalus*. Observed. Nesting.  
**Lazuli Bunting**, *Passerina amoena*. A turquoise finch. Streamsides. Shrubs. Exquisite!

## **Class Mammalia**

**Wild Horse/Mustang**, *Equus caballus*. Important restorer of North American ecosystem, including here in Pine Nut Mountains, which in its entirety is their legal BLM Herd Area where they should be restored. Confer many benefits to soils through humus, plants through seeding, catastrophic wildfire prevention, etc. Need to fill their niche & have stable social bands. Along with wild burro is only post-gastric digesting ungulate in wilds of N. Am. & balances ruminants.  
**Big Brown Bat**, *Eptesicus fuscus*. Hibernates in caves. Widespread in N. Am.  
**Pallid Bat**, *Antrozous pallidus*. Frequents caves. Obs. years ago.  
**Hoary Bat**, *Lasiorycteris noctivagans*.  
**Western Pipistrelle**, *Pipistrellus hesperus hesperus*.  
**Yellow-Bellied Marmot**, *Marmota flaviventris avara*. Mt. Siegel. Rocky hab. Food: grass/herbs.  
**Desert Woodrat/Packrat**, *Neotoma lepida*. Nest commonly seen. Amasses many diverse plants.  
**Bushytail Woodrat**, *Neotoma cinerea*. Same as above.  
**Merriam Kangaroo Rat**, *Dipodomys merriami*.  
**Great Basin Kangaroo Rat**, *Dipodomys microps*.  
**Ord Kangaroo Rat**, *Dipodomys ordi*.  
**Deer Mouse**, *Peromyscus maniculatus*. Very widespread in North America.  
**Pinyon Mouse**, *Peromyscus truei*. PJ woodland. Nests in trees. Feeds on pinyon pine nuts, etc.  
**Brush Mouse**, *Peromyscus boylei*. Feeds on pine nuts. Nests in rocks, crevices.  
**Northern Grasshopper Mouse**, *Onychomys leugaster*. Carnivorous, incl. insects, lizards. Sagebr.  
**Western Harvest Mouse**, *Reithrodontomys megalotis m.* PJ Woodland.  
**Pocket Mice**, various species, *Perognathus* spp.  
**Vagrant Shrew**, *Sorex vagrans vagrans*. Slater Mine area nearing Mt. Siegel.  
**Least Chipmunk**, *Eutamias minimus*.  
**Golden-Mantled Ground Squirrel**, *Spermophilus lateralis*. Observed.  
**White-Tailed Antelope Ground Squirrel**, *Ammospermophilus leucurus*. Obs. Fast runner w/ white tail held vertically like a flag. Can live in very arid areas & even live all its life w/o drinking.  
**Townsend's Ground Squirrel**, *Spermophilus townsendii*. Common. Obs. Big burrows.  
**Belding's Ground Squirrel**, *Spermophilus Beldingi Beldingi*. PJ Woodland.  
**California Ground Squirrel**, *Spermophilus beecheyi fisheri*. PJ Woodland.  
**Northern Pocket Gopher**, *Thomomys talpoidesmonoensis*. Streamside, meadows. Obs.  
**Long-Tailed Vole**, *Microtus longicaudus sierra*. Meadows.  
**Montane Meadow Vole**, *Microtus montanus yosemite*. Meadows.  
**Porcupine**, *Erethizon dorsatum*. Nocturnal. Climbs trees. Feeds on sap. Quills dangerous.

**Coyote**, *Canis latrans*. Seen and heard, including eerie chorus in evening. Persecuted by ranchers, hunters, federal, state and local governments. See my written report. Plays important predator role in ecosystem, keeping in balance rabbits, rodents, etc., toning populations.

**Kit Fox**, *Vulpes macrotis*. Rarer canid that likewise plays an important role similar to coyote.

**Red Fox**, *Vulpes fulva*. Similar to above.

**Gray Fox**, *Urocyon cinereoargenteus*. Similar to above.

**Note**: foxes, coyotes, bobcats, weasels, minks, etc., trapped for their pelts in Pine Nuts.

**Black Bear**, *Ursus americanus*. Chiefly nocturnal. Omnivore. Feces, tracks obs. Hunted. See rpt.

**Mountain Lion**, *Felis concolor*. Apex predator that has been nearly exterminated in Pine Nuts.

**Bobcat**, *Felis (Lynx) rufus*. Major apex predator that is similarly persecuted. Trapped.

**Long-Tailed Weasel**, *Mustela frenata*. Nocturnal. Steams.

**Mink**, *Mustela vison*. Same as above.

**River Otter**, *Lutra canadensis*. Carson River.

**Badger**, *Taxidea taxus*. Nocturnal. Digger for rodents. Big burros in ground, mounds.

**Striped Skunk**, *Mephistis mephistis*. Observed.

**Spotted Skunk**, *Spilogale putorius*. Smaller than Striped Skunk.

**White-Tailed Jackrabbit**, *Lepus townsendii townsendii*.

**Black-Tailed Jackrabbit**, *Lepus californicus deserticola*. A hare. Commonly obs. Major prey.

Coyote hunts. Displays ricochet movement pattern to throw off pursuers. Reason hit by cars.

**Mountain/Nuttall's Cottontail**, *Sylvilagus Nuttalli*. Common rabbit. Dense bushes. Major prey.

**Mule Deer**, *Odocoileus hemionus*. Major big game species of Pine Nuts & Nevada, as of much of the West. Much effort by Dept. of Wildlife to promote for hunter harvest. Major reason, along with livestock for predator reduction programs. Elegant herbivore, preyed on by puma, bear, wolf, coyote, & traditionally by Native Americans.

**Mountain/Bighorn Sheep**, *Ovis canadensis*. Group observed during flight, 5/5/15, on high ridge.

**Pronghorn Antelope**, *Antilocapra americana*. Reportedly may still survive east side Pine Nuts.

**Ringtail/Civet Cat**, *Bassariscus astutus*. Invades cabins. Very agile climber & dexterous!

## Invertebrates

### Phylum Arthropoda

#### Family Formicidae (Ants)

**Harvester Ants**, *Pogonomyrmex* spp. Along with other ants, important in recycling, bringing up minerals from deep below the soil, seeding, fertilizing, many important mutualist roles.

#### Family Tettigoniidae (Long-Horned Grasshoppers)

**Pallid-Winged Grasshopper**, *Trimerotropis pallidipennis*. Obs. 5/26/15. N. Pine Nuts.

## Class Arachnida

### Spiders

**Western Black Widow**, *Latrodectus hesperus*. Common. Found all elevations even mtn. tops.

Venomous when bites. Avoid. Black female has red hourglass on ventral side of abdomen. Male is diminutive, pale brown, eaten by female after mating. Spins helter-skelter web. Earlier webs.

### **Class Insecta**

#### **Dragonflies (Order Odonata)**

**Red Skimmer Dragonfly**, *Libellula saturata*. Observed in riparian habitats, about springs, etc.

### **Mantis**

**Praying Mantis**, *Litaneutria minor*. Could also be called “preying” mantis. Major insect predator. on many forbs, bushes, trees, etc. Observed. Different colors of insect match background.

### **Butterflies**

**Monarch Butterfly**, *Danaus plexippus*. Endangered. Depends upon healthy Milkweeds whose sap is their food. Roundup herbicide threatens Milkweeds. Amazing multigenerational migration to Mexican pine forests, which are being destroyed. Help!

**Western Tiger Swallowtail**, *Pterourus rutulus*. Associated with aspen tree, also cottonwoods.

**Red Admiral**, *Vanessa atalanta*. Associated with Nettle.

**Sara Orangetip Butterfly**, *Anthocharis cardamines*. PJ Woodland.

**Weidemeyer’s Admiral**, *Limenitis Weidemeyerii*

**California Sister Butterfly**, *Adelpha bredowii*. Pollinates Rabbitbrush.

**Pine White Butterfly**, *Neophasia menapia*

**Buckeye Butterfly**, *Junonia coenia*. Also occurs in Andes. Feeds on nectar of Rabbitbrush.

**Western Tailed Blue Butterfly**, *Everes amyntula*. Flies to mountains during summer.

**Painted Lady Butterfly**, *Vanessa cardui*. Observed. Widespread.

**Great Basin (Scrub) Wood Nymph**, *Cercyonis sthenele*. PJ Woodland, Sageb.-Steppe. Mid-elev.

**Purplish Copper Butterfly**, *Epidemia helloides*. Common in arid areas.

**White-lined Sphinx Moth**, *Hyles lineata*. Very large pollinator important to desert bushes.

**Mormon Metalmark Butterfly**, *Apodemia mormo*. Small black-&-red butterfly. Favors buckwheat. Flies in large numbers during mid-summer in northern Nevada.

**Western Pygmy Blue Butterfly**, *Brephidium exilis*. Brown with glint of blue on upper wings. Inhabits desolate areas. Important pollinator.

### **Beetles**

**Convergent Lady Beetle**, *Hippodamus convergens*. Aphid predator.

**Pinacate Beetle/Stink Bug**, *Eleodes armata*. Dung beetle. Frequently found in desert. Great distributor of nutrients from horse feces, which are mixed more thoroughly throughout the soils & ecosystem by this beetle. Partner in regenerating soils, dispersing intact seeds!

### **Cicada**

**Cicada**, *Diceroprocta* sp. Population eruptions that are cyclical. When emerge are very noisy. Complete life cycle rapidly before return to dormancy. Major food source for many animals.

**Note:** Many more species & categories deserve to be included in this list, which is not exhaustive.

**Bibliography for Pine Nut Mountains Ecological Study by [REDACTED]** (compiled July 4<sup>th</sup>, 2015)

Animal Welfare Institute. 2007. Managing for Extinction: Shortcomings of the Bureau of Land Management's National Wild Horse and Burro Program. Washington D.C: Animal Welfare Institute.

Badgley, C. et al. 2014. Great Basin Mammal Diversity in Relation to Landscape History. *Journal of Mammalogy* 95(6): 1090-1106.

Berger, J. 1986. Wild Horses of the Great Basin: Social Competition and Population Size. Chicago: University of Chicago Press.

Blackburn, *et al.* 1969. Vegetation and Soils of the Churchill Canyon Watershed. Agricultural Experiment Station, University of Nevada – Reno.

Blackwell, L.R. 2006. Great Basin Wildflowers. Falcon Guide. Morris Book Publ. Guilford CT/Helena MT.

Bureau of Land Management, Carson City Field Office. 1998. Pine Nut Mountains Proposed Plan Amendment and Environmental Assessment.

Bureau of Land Management, Carson City District Office, Nevada. 2014. Nevada Draft Resource Management Plan. December 2014.

Clotten, P. 2009. *Der letzte Mustang*. Muller Ruschlikon Verlag. Stuttgart, Germany. Photo: T. Stromberg.

Cothran, E.G. 2004 (April 27). Genetic Analysis of the Pinenut Mountain, NV feral horse herd. Department of Veterinarian Science, University of Kentucky, Lexington KY 40546.

D'Azevedo, W.C., Ed. Great Basin. Volume 11 of Handbook of North American Indians. W.C. Sturtevant Gen. Ed. See page 466 ff.

de Haan, c., H. Steinfeld, M. Rosales, P. Gerber, T. Wassenaar, & V. Costel. 2006. Livestock's Long Shadow: Environmental Issues and Options. Rome: Food & Agriculture Org. (FAO) of the United Nations.

Donlow, J. et al. 2005. Rewilding North America. *Nature* 436 (7035): 913-914.

Downer, C.C. 1977. Wild Horses: Living Symbols of Freedom. Sparks, NV: Western Printers & Publishers.

Downer, C.C. 2005. Wild and Free-Roaming Horses and Burros of North America: Factual and Sensitive Statement – How They Help the Ecosystem. *Natural Horse* (December) 7(3):10-11.

Downer, C.C. 2010. Proposal for Wild Horse/Burro Reserve Design as a Solution to Present Crisis. *Natural Horse*, 2010, Vol. 12, Issue 5, pp. 26-27.

Downer, C.C. 2014. The Wild Horse Conspiracy. [www.amazon.com/dp/1461068983](http://www.amazon.com/dp/1461068983). eBook or in print.

- Downer, C.C. 2014. The horse and burro as positively contributing returned natives in North America. *American Journal of Life Sciences*. 2014, 2(1):5-23. Available online: (<http://www.sciencepublishinggroup.com/j/ajls>) doi: 10.11648/j.ajls.20140201.12
- Downer, C.C., J. Johnston, & K. Scott. 2014. Northern California/Nevada Border Twin Peaks Wild Horse and Burro Herd Management Area Aerial Population Survey. November 26, 2013. Available at [www.thewildhorseconspiracy.org](http://www.thewildhorseconspiracy.org).
- Duncan, P. 1992. Zebras, Asses, and Horses: An Action Plan for the Conservation of Wild Equids. IUCN Species Survival Commission, Equid Specialist Group. Gland, Switz.: World Conservation Union.
- Gordon, I.J. & H.H.T Prins, Eds. *The Ecology of Browsing and Grazing*. 2008. Springer-Verlag, Berlin, Heidelberg, Germany.
- Grayson, D.K. 2011. *The Great Basin: A Natural Prehistory*. University of California Press, Berkeley.
- Gregg, K.; Le Blanc, L.; Johnston, J. 2014. Wild Horse Population Growth. <http://rtfitchauthor.com/2014/04/28/report-wild-horse-population-growth/>
- Groves, C.P. 1974. *Horses, asses, and zebras in the wild*. London: Newton Abbot Publishers.
- Guenzel. 1997. Estimating Pronghorn Abundance Using Aerial Line Transect Sampling. Wyoming Game & Fish Dept., Cheyenne. <http://www.rumpa.stand.ac.uk/distance.book/pronghorn.html>.
- Hagerty, D.J. 1970. Archeology and Ecology in the Pine Nut Mountains, Nevada. M.A. Thesis in Anthropology. University of California – Davis.
- Harbury, M. 1989. *The Last of the Wild Horses*. Arrowhead Press, New York. 192 pp. Photo. Illustrated.
- Hudak, M. 2007. *Western Turf Wars: The Politics of Public Land Ranching*. Binghamton NY: Biome Books.
- Janis, C.M. 1976. The evolutionary strategy of the Equidae and the origins of rumen and cecal digestion. *Evolution* 30: 757-774.
- Jenkins, S.H, & M.C. Ashley. 2003. Wild Horses, *Equus caballus*, and Allies. Ch. 53 **In:** *Wild Mammals of North America: Biology, Management and Conservation*. 2<sup>nd</sup> Ed. Eds: G.A. Feldhamer, B.C. Thompson, & J.A. Chapman. Baltimore & London: The John Hopkins University Press.
- Johnston, J. 2011. California's Wild Horses and Burros: Twin Peaks HMA. California State University – Sacramento. Master's of Science Thesis. Dept. of Env. Sci. & Public Policy. Available online: [http://csusdspace.calstate.edu/xmlui/bitstream/handle/10211.9/1492/WHB\\_Thesis\\_Final%2011.30.11.pdf?sequence=1](http://csusdspace.calstate.edu/xmlui/bitstream/handle/10211.9/1492/WHB_Thesis_Final%2011.30.11.pdf?sequence=1)
- Klingel, H. 1979. A Comparison of the Social Organization of the Equids. **In:** *Symposium on the Ecology and Behavior of Wild and Feral Equids*. Proceedings: University of Wyoming, Laramie, Sept 6-8, 1979.

- Knutson, T. 2012 (4/28). Wildlife Investigation: The killing agency: Wildlife Services' brutal method leaves a trail of animal death. *The Sacramento Bee*. Available online: <http://www.sacbee.com/news/investigations/article2574599.html>.
- Knutson, T. 2015 (2/4). There's a reason you've never heard of this wildlife-killing agency. *The Sacramento Bee*. Available online: <https://www.revealnews.org/article/theres-a-reason-youve-never-heard-of-this-wildlife-killing-agency/>. Quote from article: "When I asked to observe Wildlife Services' lethal predator control in action on public land in Nevada, the answer was unequivocal: No."
- Lanner, R.M. 1981. *The Pinon Pine: A Natural and Cultural History*. University of Nevada Press – Reno.
- Lanner, R.M. 1983. *Trees of the Great Basin: A Natural History*. University of Nevada Press -- Reno.
- MacFadden, B.J. 1992. *Fossil horses: systematics, paleobiology, and evolution of the family Equidae*. Cambridge, UK: Cambridge University Press.
- Maurer, D.K. 2011. *Geological Framework and Hydrogeology of the Middle Carson River Basin, Eagle, Dayton, and Churchill Valles, West Central Nevada*. Scientific Investigation Report 2011-5055. USDI-USGS. Reston, Virginia.
- Maurer, D.K; A.P. Paul; D.L. Berger; & C Justin Mayers. 2009. *Analysis of Streamflow Trends, Ground-Water and Surface-Water Interactions, and Water Quality in the Upper Carson River Basin, Nevada and California*. Scientific Investigations Report 2008-5238. USDI-USGS. Reston, Virginia.
- McLane, A.R. 1978. *Silent Cordilleras*. Camp Nevada, Reno NV. See p. 72 for Pine Nut Mountains.
- Meeker, J.O. 1979. *Interaction between pronghorn Antelope and Feral Horses in Northwestern Nevada*. Master's of Science Degree. Wildlife Management Thesis. University of Nevada-Reno.
- Mitchell, J. 1986 (7/6). "Nature may be limiting wild horse population." *Reno Gazette Journal*. P. 34.
- Morrison, M.I. 2002. *Wildlife Restoration Technique for Habitat Analysis and Animal Monitoring*. Washington DC: Island Press.
- Mullen, F.X., Jr. 2010 (3/21). *Wild horses: managed wisely or to extinction?* *Reno Gazette Journal*. P. 1 ff.
- National Research Council. 1994. *Rangeland Health: New Methods to Classify, Inventory, and Monitor Rangelands*. Washington, D.C.
- Pellant, M.P., P. Shaver, D.A. Pyke, J.E. Herrick. 2005. *Interpreting Indicators of Rangeland Health*. Ver. 4. USDI, BLM, Nat. Sci. & Tech. Ctr. Div. of Science Integration. Branch of Publ. Sci. Tech. Ref. 1734-6.
- Purcell, R. 2001. *Portraits of Nature*. KC Publishers, Las Vegas NV.

- Ryser, F.A. 1985. *Birds of the Great Basin: A Natural History*. University of Nevada Press – Reno.
- Stillman, D. 2008. *Mustang: the Saga of the Wild Horse in the American West*. Boston: Houghton Mifflin.
- Trimble, S. 1999. *The Sagebrush Ocean: A Natural History of the Great Basin*. U. of Nevada Press—Reno
- University of Wyoming. 1979. *Proceedings of the Symposium on the Ecology and Behavior of Wild and Feral Equids*. Laramie, WY. Sept. 6-8, 1974. Laramie, WY: University of Wyoming.
- U.S. Dept. of Agriculture. 1997. *Natural Range and Pasture Handbook*. Washington D.C.
- U.S. Dept. of Interior. 1993. *Riparian Area management: process for assessing proper functioning condition*. Tech. Ref. 1737-9. Service Center, Denver, Colorado.
- USDI. 2007. *Public Land Statistics*.
- Wheat, M.M. 1967. *Survival Arts of the Primitive Paiutes*. Reno, NV: University of Nevada Press.
- Wuerthner, G. & M. Matteson, Eds. 2002. *Welfare Ranching: The Subsidized Destruction of the American West*. Washington DC: Island Press. Illustrated.
- Zeier, C, R. Reno, R. Elston, P. Rucks, E. Ingbar & M. Drews. 2002 (Dec. 6). *A Historical Context and Cultural Resource Sensitivity Framework for the Pine Nut Mountains, West Central Nevada*. Available at Knowledge Center, University of Nevada – Reno.
- Zimov, S.A. 2005. Pleistocene park: return of the mammoth’s ecosystem. *Science* 308: 796-798.

**Species Identification Guides** employed in Pine Nut Mountains study: Peterson Series Guides (Mammals, Birds, Amphibians & Reptiles), Audubon Guides (Butterflies, Flowering Plants), Munz P.A., [A California Flora](#) (Plants); Knobel E. [Field Guide to the Grasses, Sedges and Rushes of the United States](#); Brown, Yocom & Starbuck, [Wildlife of the Intermountain West](#). Other descriptive guidebooks also employed, some of which are more precisely referenced in this bibliography.

September 21, 2015

U.S. Department of the Interior

Bureau of Land Management

Carson City District Sierra Front Field Office

5665 Morgan Mill Road Carson City, NV 89701

[pinenuthorses@blm.gov](mailto:pinenuthorses@blm.gov)

[REDACTED]

[REDACTED]

Re: Pine Nut Herd Management Area DRAFT HMA EVALUATION September 2015

***BLM Nevada News***

*Carson City District Office*

*For Release: September 8, 2015*

Contact: [REDACTED]

*Carson City, NV. The Bureau of Land Management (BLM), Sierra Front Field Office has prepared a draft Evaluation for the Pine Nut Mountains Herd Management Area (HMA) which is located south of Dayton and east of Carson City, Nevada.*

*This draft Evaluation describes the history of the HMA, condition of riparian areas based on functional assessments, and vegetative trends based on rangeland health assessments. The purpose of the draft Evaluation is to assess the existing conditions of the HMA, and whether the objectives of maintaining a thriving natural ecological balance in relationship to the multiple-use mandate of maintaining a healthy range for wildlife, livestock, and wild horses is being achieved.*

*We are requesting any data that you may have pertaining to the vegetation condition, utilization levels, riparian condition and wild horse condition by September 22, 2015.*

*The draft Evaluation can be found on-line at: [http://www.blm.gov/nv/st/en/fo/carson\\_city\\_field.html](http://www.blm.gov/nv/st/en/fo/carson_city_field.html) To be considered, the data can be sent electronically to [pinenuthorses@blm.gov](mailto:pinenuthorses@blm.gov) or submitted in person to the Carson City District Office at 5665 Morgan Mill Road. Data must be received by September 22, 2015.*

*For more information contact John Axtell, Wild Horse Specialist at: 775-885-6146.*

*-BLM-*

First, I would like your office's justification by the BLM as to why the public input final date is September 22, 2015 when the announcement by BLM was only two weeks before that on September 8, 2015? I realize there is not a specific number of days that the public should have to make public comment on this important NEPA draft document but it is quite clear that this is being handled as a rush job with little chance for it to gather the attention of the public. The BLM is also clearly aware that any and all previous wild horse capture/removals in past years has been done illegally because the BLM had no written Herd Management Plan" for the Pine Nut HMA 43 CFR 4710.3-1. Therefore this draft action and those tiered to it is not an emergency and the public should have been allowed at least 30 days to provide input – if not more. I request a response.

Right out of the door, (Section 1 – Introduction) the draft is in error in its premise analysis of its ability to achieve and maintain a thriving ecological balance based on the range deterioration associated with an "overpopulation of wild horses (*Equus callabus*)". There is no "overpopulation" of wild horses on these legally designated wild horse and burro lands that were specifically allocated by the Congress of the United States of America. The recent National Academy of Science (NAS) report on the Wild Horse and Burro Program determined that the Bureau of Land Management (BLM) **has no evidence of excess wild horses and burros**; because the BLM has failed to use scientifically sound methods to estimate the populations (NAS, 2013). The NAS cited two chief criticisms of the Wild Horse and Burro Program: unsubstantiated population estimates in herd management areas (HMA), and management decisions that are not based in science (NAS, 2013).

The National Environmental Policy Act (NEPA) requires that to ensure that environmental assessment statements reflect a careful consideration of the available science, and that areas of disagreement or uncertainty are flagged rather than being swept under the carpet. Thus, the public and the decision makers must resist the urgings of agencies that low-probability risks of very serious harms be dismissed from consideration or that **the risk is evaluated only under the agency's favored theoretical model without taking into account the possibility that other credible models might be correct.**

## **Requirements of the National Environmental Policy Act**

At its most basic level, NEPA requires that the decision-maker, as well as the public, be fully informed, i.e. "that environmental information is available to public officials and citizens before decisions are made and before action is taken." 40 C.F.R. § 1500.1 (b). NEPA ensures that the agency "will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger [public] audience." *Robertson v. Methow Valley*

*Citizens Council*, 490 U.S. 332,349 (1989). See also *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir. 1998) (agency analysis must be "fully informed and well-considered"). NEPA's twin aims are to ensure that BLM "consider every significant aspect of the environmental impact of a proposed action" and that BLM "inform the public that it has indeed considered environmental concerns in its decision-making process." *Earth Island Inst. v. U.S. Forest Serv.*, 442 F.3d 1147, 1153-54 (9th Cir. 2006) (citing *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1066 (9th Cir.2002)); *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 97 (1983). [http://www.blm.gov/style/medialib/blm/wo/Information\\_Resources\\_Management/policy/im\\_attachments/2013.Par.26274.File.dat/Lease%20reinstatement%20attach%202.pdf](http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/im_attachments/2013.Par.26274.File.dat/Lease%20reinstatement%20attach%202.pdf)

## **BLM Carson City District Violations – Recent and Past**

The BLM is acutely aware that any and all previous wild horse capture/removals in past years have been done illegally because the BLM had no written Herd Management Plan” for the Pine Nut HMA 43 CFR 4710.3-1.

- Nonexistence of Herd Management Plan

BLM representatives are required to prepare and have a Herd Management Plan. “43 CFR 4710.3-1: Herd management areas. Herd management areas shall be established for the maintenance of wild horse and burro herds. In delineating each herd management area, the authorized officer shall consider the appropriate management level for the herd, the habitat requirements of the animals, the relationships with other uses of the public and adjacent private lands, and the constraints contained in 4710.4. The authorized officer shall prepare a herd management area plan.”

[http://www.blm.gov/style/medialib/blm/nv/field\\_offices/carson\\_city\\_field/wild\\_horses\\_and\\_burros/pine\\_nut\\_mtns\\_hma.Par.23491.File.dat/ClanAlp\\_Final\\_10\\_20\\_2010.pdf](http://www.blm.gov/style/medialib/blm/nv/field_offices/carson_city_field/wild_horses_and_burros/pine_nut_mtns_hma.Par.23491.File.dat/ClanAlp_Final_10_20_2010.pdf)

**Below are two lists of thirty-one Pine Nut Wild Horses captured and removed without public notification and without Herd Management Plan as Required by 43 CFR 4710.3-1. The partial lists below verify BLM's violations of 43 CFR 4710.3-1 (Herd Management Plan).**

Species	Signalment Key	Capture Date	Capture Herd Place
Horse	HG1ADAEBB	01/31/13	(NV0305) Pine Nut Mountains
Horse	HF1ADACBD	01/31/13	(NV0305) Pine Nut Mountains
Horse	HG1AFEFB	01/31/13	(NV0305) Pine Nut Mountains
Horse	HF1ABAABH	01/31/13	(NV0305) Pine Nut Mountains
Horse	HF1AAAAAB	01/31/13	(NV0305) Pine Nut Mountains
Horse	HF1AAABAB	01/31/13	(NV0305) Pine Nut Mountains

Horse	HF1AAABBH	02/27/13	(NV0305) Pine Nut Mountains
Horse	HF1AAAAAG	02/27/13	(NV0305) Pine Nut Mountains
Horse	HF1AAAFL	02/27/13	(NV0305) Pine Nut Mountains
Horse	HF1AAAAAM	02/27/13	(NV0305) Pine Nut Mountains
Horse	HG1AEAEHB	02/27/13	(NV0305) Pine Nut Mountains
Horse	HF1AAAAAG	02/27/13	(NV0305) Pine Nut Mountains
Horse	HG1ADADAF	06/06/13	(NV0305) Pine Nut Mountains
Horse	HG1FFFABE	01/20/14	(NV0305) Pine Nut Mountains
Horse	HF1ADAEDEE	01/20/14	(NV0305) Pine Nut Mountains
Horse	HG1AAAFB	01/20/14	(NV0305) Pine Nut Mountains
Horse	HF1DDDDBB	01/20/14	(NV0305) Pine Nut Mountains
Horse	HF1EFEFIB	01/20/14	(NV0305) Pine Nut Mountains
Horse	HF1AEAAEB	01/20/14	(NV0305) Pine Nut Mountains

Capture Date	Capture Herd Place	Capture Method	Signalment Key
12/4/2012	(NV0305) Pine Nut Mountains	Helicopter/Rope	HG1AAAAAB
12/4/2012	(NV0305) Pine Nut Mountains	Helicopter/Rope	HG1DEDDEB
12/4/2012	(NV0305) Pine Nut Mountains	Helicopter/Rope	HG1FEFEAB
12/4/2012	(NV0305) Pine Nut Mountains	Helicopter/Rope	HG2FFFFED
2/27/2013	(NV0305) Pine Nut Mountains	Other	HF1AAAABB
6/6/2013	(NV0305) Pine Nut Mountains	Food Trap	HG1ADADAF
9/12/2013	(NV0305) Pine Nut Mountains	Helicopter/Trap	HG1AAAEHB
9/18/2013	(NV0305) Pine Nut Mountains	Helicopter/Trap	HG1DEADEB
10/22/2013	(NV0305) Pine Nut Mountains	Helicopter/Trap	HG1AAAABB
10/22/2013	(NV0305) Pine Nut Mountains	Helicopter/Trap	HG1AAADIB
10/22/2013	(NV0305) Pine Nut Mountains	Helicopter/Trap	HG1ADADBE
10/22/2013	(NV0305) Pine Nut Mountains	Helicopter/Trap	HG1FFFFJB

- Disregarding Hercules Exploration Project

## FINAL ENVIRONMENTAL ASSESSMENT

DOI-BLM-NV-C020-2014-0033-EA

The Hercules Exploration Project area is within the Pine Nut Herd Management Area and the proposed NEPA draft must seriously consider the effect of this project' activities and how they effect and prevent migration or access to water by the wild horses, the acreage of the project is within the historical boundary of the legally designated Pine Nut Herd Management Area. Therefore, the horses will be affected beyond migration and water access issues, including loss of habitat and fragmentation and air and water quality within their legal Pine Nut range. This issue must be considered in the upcoming evaluation.

[https://www.blm.gov/epl-front-office/projects/nepa/41037/52228/56919/Final\\_EA.pdf](https://www.blm.gov/epl-front-office/projects/nepa/41037/52228/56919/Final_EA.pdf)

- Disregarding Pine Nut Land Health Project

## FINAL ENVIRONMENTAL ASSESSMENT

DOI-BLM-NV-C020-2013-0017-EA

The planning area of this project includes 24,564 acres. The Pine Nut Wild Horse Herd Management Area is located within the planning area. This substantial project must be discussed and included in any NEPA document affecting the Pine Nut wild horses. A current and encompassing review is required that will include an assessment of the effects of the Land Health Project EA on the current and any upcoming status of the Pine Nut wild horses and their habitat, including this draft proposal.

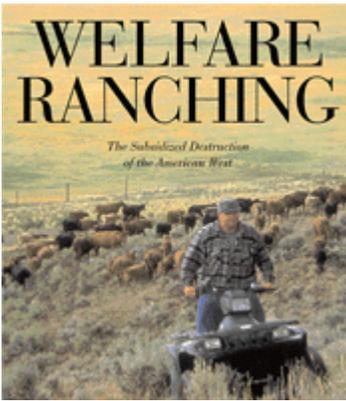
[https://www.blm.gov/epl-front-office/projects/nepa/36259/47899/51982/Final\\_EA.pdf](https://www.blm.gov/epl-front-office/projects/nepa/36259/47899/51982/Final_EA.pdf)

## **The Cost of Private/Corporate Domestic Livestock Grazing on the Pine Nut HMA**

As required by NEPA to bring federal action in line with Congress' goals and to foster environmentally informed decision-making by federal agencies, NEPA “establishes ‘action-forcing’ procedures that require agencies to take a ‘hard look’ at environmental consequences.” *Metcalf v. Daley*, 214 F.3d 1135, 1141 (9th Cir.2000) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348, 109 S.Ct. 1835, 104 L.Ed.2d 351 (1989)).

Therefore, I hereby require that the following information be included in the BLM’s “hard look” and included in the BLM administrative record. Names of credentialed experts in this field are included in the book, including but not limited to: Dr. Thomas L. Fleischner, Dr. J. Boone Kaufman, Dr. Carl E. Bock, Dr. Brian L. Horejsi, Dr. Brian J. Miller and Dr. Thomas A. Power.

***“Welfare Ranching: The Subsidized Destruction of the American West”***



The majority of the American public does not know that livestock grazing in the arid West has caused more damage than the chainsaw and bulldozer combined. *Welfare Ranching: The Subsidized Destruction of the American West* is a seven-pound book featuring 346 pages of articles and photographs by expert authors and photographers on the severe negative impacts of livestock grazing on western public lands.

<http://www.publiclandsranching.org/book.htm>

Excerpts:

*“The public lands of the United States are a hallmark of our democracy and harbor some of the greatest resources of our nation. Federally managed lands - owned by all Americans - total 623 million acres; more than 25 percent of the U.S. land base. There are four major federal land agencies-the Bureau of Land Management (BLM), the U.S. Forest Service (USFS), the National Park Service (NPS), and the U.S. Fish and Wildlife Service (USFWS). State agencies and other government departments oversee millions of acres of additional public land.”*

*“The vast majority of the federal public lands are in the western United States, where they serve as sources of clean water, recreation, scenic beauty, and inspiration. The public lands are wildlife habitat and in many cases provide the only remaining suitable environments for jeopardized species.”*

*“One of the most problematic obstacles for those advocating an end to public lands livestock grazing is the subtle nature of livestock abuse. Unlike the clearly visible damage to the land in a clearcut forest, the effects of livestock production on rangelands are far less obvious to the untrained eye. While someone with no ecological background can be moved to tears by the destruction of centuries-old trees and the loss of a forest ecosystem, the equivalent devastation of a grassland or shrub ecosystem engenders no remorse, no sad commentary, no outrage. “Overgrazing” to most people may conjure up images of a Saharan wasteland. Yet only in the very worst situations does livestock grazing create a barren landscape, devoid of all vegetation. Rather, most changes wrought by livestock are gradual, with the effect on plants being the replacement, over time, of more desirable species (for wildlife habitat and food as well as, often, for livestock consumption) with less desirable plant species. But the alteration of plant communities is only the beginning of what livestock grazing does to the land. Other, even more subtle effects include compaction of soils, leading to lower water infiltration and greater runoff; loss of hiding cover for small mammals and birds; and removal of flowers, seeds, and leafy vegetation that are food for such species as butterflies, birds, and herbivorous mammals. Other problems*

*caused by livestock production are fencing that hinders wildlife movement; disturbance of plant communities that favors weed invasion; dewatering of streams that reduces the width of riparian areas; draining of wetlands to create hay fields; trampling of stream banks and degradation of fish habitat; development of springs and removal of water on which frogs, birds, and other native species depend; and other effects that are not apparent to the uneducated observer.”*

*“Unfortunately, resource exploitation of various kinds has driven public lands management for many decades. Mining, logging, oil and gas drilling, and even farming have occurred and continue to occur on public lands. But the most widespread commercial use of western public lands is livestock production. Nearly all public lands that have any forage potential for livestock are leased for grazing. This includes 90 percent of BLM lands, 69 percent of USFS lands, and a surprising number of wildlife refuges and national parks. This land - your public land - is frequently managed as if it were a private feedlot rather than the common heritage of all Americans.”*

*“Wolves were exterminated from the American West by a concerted campaign mounted by federal hunters and funded with local, state, and federal revenues. Using poison, traps, and bullets, the government pursued each wolf with the avowed goal of wiping the species off the face of the Earth. The livestock industry was the sole beneficiary of, and the greatest political impetus for, this campaign. Today, the livestock industry stands at the heart of the opposition to wolf recovery and has blocked, hampered, and sabotaged reintroduction programs throughout the West. Unfortunately, the industry’s political clout has profoundly shaped wolf recovery programs that are supposed to be guided by science.*

*In the Southwest, Mexican wolf reintroduction began in 1998, almost two decades after the last five individuals were removed from the wild for an emergency captive breeding program. The Mexican wolf, a separate subspecies from the gray wolf inhabiting regions to the north, originally roamed throughout Arizona, New Mexico, and Texas, as well as northern Mexico. It, too, was extirpated from the United States by the federal government. Although the Mexican wolf is the most imperiled mammal in North America, it was designated “experimental, nonessential” like its kin in Idaho and the Yellowstone region, in an attempt to buy off livestock industry support for reintroduction. It didn’t work. Soon after the first eleven wolves were released, five were shot, two disappeared, and the remainder were recaptured for their own protection. The livestock industry cheered the killings, and the New Mexico Farm Bureau and Cattle Growers Association filed suit to remove the wolves but were rebuffed in court. Over the next two years, government management of the Mexican wolves in conformance with their diminished protected status did even more damage than had the poachers. In 1999, the first released Mexican wolves to reproduce successfully in the wild were recaptured from the Apache National Forest in Arizona after they killed a couple of cows on national forest lands. In the course of that recapturing, three of the wild-born pups died from parvovirus. According to the veterinarian who necropsied them, the pups were already in the process of overcoming the disease at the time of capture, but the stress of that event likely*

*caused them to succumb. After the survivors were rereleased into the Gila National Forest in New Mexico, two of the surviving pups dispersed from the pack at a younger age than is normal for wolves, and one is missing and presumed dead. Biologists do not know whether their period of captivity altered their behavior. Another pack of Mexican wolves also preyed on cattle on the Apache National Forest, but in this case the cattle were illegally present, having been ordered out by the Forest Service because of severe overgrazing.*

*There was so little forage present that deer and javelina had already been displaced. The rancher failed to remove his cattle, and Forest Service officials failed to enforce their own order—which they later rescinded. Meanwhile, the U.S. Fish and Wildlife Service, unable to force the Forest Service to uphold its own decisions, managed to draw the wolves away to another (overgrazed) allotment on the Gila National Forest. But the wolves had become habituated to cattle, and a week after they discovered and scavenged on a dead cow in the Gila, they began killing cattle again. As a result, seven wolves were trapped, and one pup and a yearling disappeared; both likely died. A third family of wolves didn't kill livestock at all. But they were also recaptured after scavenging on a dead cow and horse left out on the forest. It was feared that the wolves might learn to prey on livestock after they had tasted beef. In the course of the government's trapping effort, the adult female's leg was injured in a leghold trap and had to be amputated. The pack was rereleased into the Gila, but again, a previously tight family unit broke apart soon after. Two pups were subsequently trapped and returned to cages.*

*The conflict between the livestock industry and wolf recovery is more deeply rooted than the seemingly simple question of how to protect stock from predators. For even though a handful of ranchers—representing a tiny minority of the industry as a whole—have forsworn killing wolves and pledged themselves to living with the species, their cattle still displace elk, deer, and other native prey animals. Each blade of grass eaten by a cow means that much less for elk, and each cow shipped to market represents the removal from the ecosystem of hundreds of pounds of biomass that would otherwise take the form of deer, elk, moose, or pronghorn—all of which wolves might otherwise eat.*

*In the face of the vast damage done to the American West by livestock production, predators would serve to help heal the natural landscape, to bring ecosystems back toward homeostasis. The systematic killing of predators keeps our otherwise wild places forever artifacts of our own civilization.”*

**“MYTH**

*Ranching Is the Foundation of Rural Economies*

**TRUTH**

*Many livestock supporters attempt to portray public lands livestock production as an essential element of rural economies. It's easy to see the fallacy in this argument if you think about the numbers involved. For example, in Nevada there are fewer than 800 public lands grazing permittees. And in the entire state less than 2,000*

people are engaged full-time as farmers or ranchers. One casino in Las Vegas employs more people than work in agriculture in all of Nevada. Although other states may have higher numbers of people involved in ranching, livestock production is proportionally a small part of the economic picture in all western states. Ranching and associated activities provide very few jobs. Furthermore, most ranch operations, except the very biggest, are not highly profitable. Both of these truths help explain the rather interesting finding of one University of Arizona study: that instead of rural towns being dependent on the livestock industry for their economic survival, the reverse was true. Ranch families depend on nearby towns and cities to provide full or part-time jobs that help keep the ranch financially afloat. Without family income from such positions as schoolteachers, local civil servants, store clerks, salespeople, and so forth, ranch ownership would be impossible. The vast majority of people who call themselves ranchers enjoy the lifestyle and the prestige, but they are not choosing a lucrative pursuit (as indeed many will complain!). Therefore, it can be argued that, financially, rural towns would likely survive without ranchers, but most ranchers would be hard-pressed to survive without the towns.”

“Many people assume, since most of the western landscape is given over to livestock production, that ranching must be economically important. But, as economist Thomas Power points out in the opening essay of this section, the livestock industry contributes almost nothing to western economies, even at the local level. Despite the cowboy’s image as a rugged, independent individual, a host of government subsidies keep him propped up in the saddle. The western rancher is dependent on what is, in essence, a welfare program. The much-publicized low fees paid by ranchers to graze federal lands are only the beginning. Other subsidies include taxpayer-supported research at western land grant universities and agricultural exemptions that lower property taxes paid by ranchers. There are handouts to help with nearly every problem: drought relief, low-interest agricultural loans, emergency livestock feed programs, emergency grazing on Conservation Reserve Program lands, to name a few. Even many of the fences crisscrossing the West’s “open” spaces are paid for by American taxpayers. And this is not all. Ranchers are literally mortgaging the public’s resources for their private benefit. As Mark Salvo explains in his essay on the connection between the banking industry and public lands ranching, ranchers are able to take out loans based on the “value” of their grazing permits. This questionable arrangement forces government officials to consider the status of a rancher’s debt when making range management decisions, rather than focusing on what is best for the land. Beyond the economic subsidies are the health, social, and environmental costs of the animal agriculture industry in general—the larger context within which public lands livestock grazing is properly viewed. Ills such as heart disease, cancer, kidney disease, and hypertension may seem quite unrelated to ranching on western public lands, just as food security, loss of arable land, desertification, tropical deforestation, urban overcrowding, and poverty may appear unconnected to problems of ecosystem degradation in the arid West. Yet, all these difficulties are linked—directly or indirectly—to an international system of meat production and an increasingly global pattern of meat consumption. Western ranching is a part of these destructive worldwide trends.”

*“Livestock advocates suggest that water developments, such as troughs and stock ponds, benefit wildlife. While some wild animals undoubtedly use them, these facilities tend to lack adequate surrounding vegetation for hiding cover, nesting habitat, foraging, and other wildlife needs. Thus, these structures are almost useless to most wild species, and they exist at the expense of natural seeps, springs, and streams that would support far more native creatures if left intact.”*

***“What can be done to address the problems associated with public lands livestock grazing? There is a simple answer: end it. Get the cows and sheep off, let the wild creatures reclaim their native habitat, and send the ranchers a bill for the cost of restoration”***

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America's public lands belong to all Americans and must be managed for the broader interests of the American people and not for the narrow interests of a handful of local or corporate users who profit from grazing livestock on those lands. I am appalled that my land is being managed as if it were a private feedlot rather than the common heritage of all Americans. The federal government does not own lands in the West. These are not "state lands" and not "federal lands" and not even "government lands". They are public lands. The American people own the public lands in the West and they are to be administered on behalf of all Americans by the national government under laws and regulations.

The BLM and the welfare ranchers want wild horses eradicated from public lands in favor of sheep and cattle grazing. This grazing is for the sole purpose of fattening up the unfortunate cows and sheep that are then brutally slaughtered and finally consumed. The direct link between cattle and sheep ranching with wild horse roundups is real and will continue until we intelligent humans take responsibility for our palates and refuse to financially support the industry. Wild horse captures and removals and pesticide applications would not be

deemed "necessary" if not for sheep and cattle ranchers whose meat businesses bring in the money that allows them to influence policies and politicians that are corrupt.

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## Study: Livestock Grazing on Public Lands Cost Taxpayers \$1 Billion Over Past Decade

WASHINGTON— A new [analysis](#) finds U.S. taxpayers have lost more than \$1 billion over the past decade on a program that allows cows and sheep to graze on public land. Last year alone taxpayers lost \$125 million in grazing subsidies on federal land. Had the federal government charged fees similar to grazing rates on non-irrigated private land, the program would have made \$261 million a year on average rather than operate at a staggering loss, the analysis finds.

The study, *Costs and Consequences: The Real Price of Livestock Grazing on America's Public Lands*, comes as the Obama administration prepares Friday to announce grazing fees for the upcoming year on 229 million acres of publicly owned land, most of it in the West. The report was prepared by economists on behalf of the Center for Biological Diversity.

"Public lands grazing has been a billion-dollar boondoggle over the past decade and hasn't come close to paying for itself," said Randi Spivak with the Center for Biological Diversity. "Livestock owners pay less to graze their animals on publically owned land in 2014 than they did in 1981. Today the monthly cost of allowing a cow and calf to graze on federal lands is about the equivalent of a can of dog food. This damaging and expensive grazing program has been broken for years and needs to be fixed. Taxpayers, and the land we all own, deserve better."

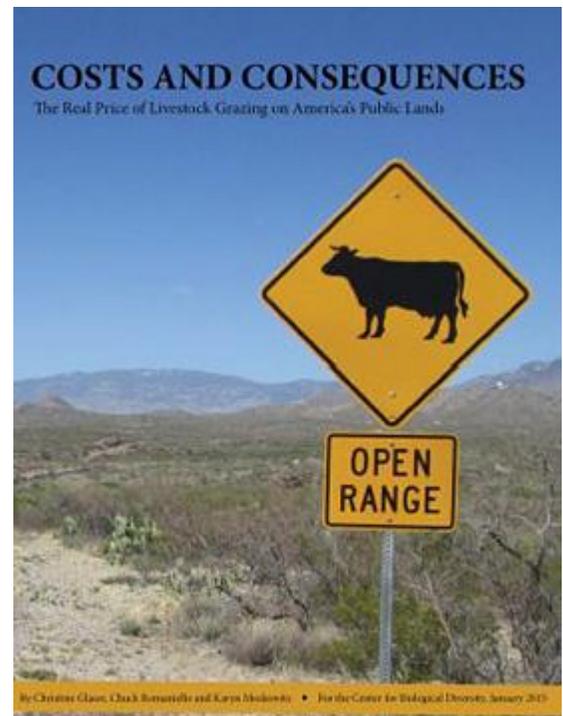
The gap between federal grazing fees and non-irrigated private land rates has widened considerably, according to the study. Bureau of Land Management and U.S. Forest Service grazing fees are \$1.35 per month per animal unit (a cow and a calf), just 6.72 percent of what it would cost to graze livestock on private grazing lands. This is a marked decline from the federal fee being 23.79 percent of non-irrigated private rates when the federal fee first went into effect in 1981.

"The fees for grazing on U.S. Forest Service and Bureau of Land Management lands needs to be seriously reevaluated," said Christine Glaser, an economist with GreenFire Consulting and author of the report. "Over the past three decades the fee formula has clearly decoupled public grazing fees from the development of private, state and other federal agencies grazing fees. Bottom line, this formula shields public lands ranchers from grazing rate increases that every other livestock operator has to live with."

There are about 800,000 livestock operators and cattle producers in the United States. Of those, fewer than 21,000 — or 2.7 percent of the nation's total livestock operators — benefit from the Forest Service and BLM grazing programs in the West.

"The Public Rangeland Improvement Act subsidizes a small segment of the livestock industry," said the study's co-author and former Interior Department economist Chuck Romaniello. "There needs to be a discussion as to what the appropriate level of that subsidy should be, including if there should be a subsidy at all."

The federal subsidy of the grazing program goes beyond the direct costs and fees. There are vast indirect costs to grazing on federal lands, including the government killing of native carnivores perceived as threats to livestock, wildfire suppression caused by invasive cheat grass facilitated by cattle grazing, and expenditure of U.S. Fish and Wildlife Service funds from protecting other species threatened by livestock grazing. "The full cost of the federal grazing program is long overdue for a complete analysis," the study said.



*The Center for Biological Diversity is a national, nonprofit conservation organization with more than 800,000 members and online activists dedicated to the protection of endangered species and wild places.*

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[http://www.biologicaldiversity.org/news/press\\_releases/2015/grazing-01-28-2015.html](http://www.biologicaldiversity.org/news/press_releases/2015/grazing-01-28-2015.html)

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## Assessing the Full Cost of the federal Grazing Program

Karyn Moskowitz, MBA Chuck Romaniello, MS Ag. Econ. prepared for the Center for Biological Diversity Tucson, Arizona in cooperation with American Lands, Western Watersheds Project, Oregon Natural Desert Association, Forest Guardians, Committee for Idaho's High Desert and the National Public Lands Grazing Campaign October 2002

About the Authors Karyn Moskowitz received her MBA in Environmental Management from the University of Washington Graduate School of Business in Seattle in 1994. She is presently Executive Director of the Resource Stewardship Council, a nonprofit organization promoting quality education linking economics and the environment. She is presently a Rockefeller Fellow at the Appalachian Center of the University of Kentucky in Lexington. Chuck Romaniello received his MS in Agricultural Economics from the University of Arizona in 1979. He has worked as an economist for the Bureau of Land Management since 1981. He currently serves in the Colorado State Office of the BLM. He has co-authored this report as a private citizen and not as a representative of the BLM.

Assessing the full cost Executive Summary 1 Executive Summary Several efforts have been made to estimate the full costs of the federal livestock grazing program. This study examines budget records and other relevant data to derive a minimum estimate of \$128 million for the full, annual cost to the U.S. Treasury of grazing on lands administered by the Bureau of Land Management and the Forest Service in the western U.S. Grazing fees charged by the BLM and Forest Service are limited by regulation to a fraction of market rates. Moreover, 50 percent of the fee revenue is retained by agencies to construct range developments, and approximately 15 percent goes to county governments. This leaves approximately 35 percent for the U.S. Treasury. As a result the federal grazing program operates at a loss to the U.S. Treasury, a loss that can be calculated as the Congressional Appropriations for the program, less the fee receipts to the Treasury. The net direct loss of the BLM's range management program was over \$72 million in 2001. The loss for the Forest Service exceeded \$52 million in 2000. However, these direct costs of range management and administration are likely a minor part of the full costs of the grazing program to the public. Many other programs, both within the two agencies and in other federal posts, either support ranching operations on public lands or are needed to compensate for resource damage caused by livestock. Such programs include Wildlife Services, in the Department of Agriculture, which kills wild animals to protect livestock, among other purposes. Public lands ranching accounted for about \$4 million of Wildlife Services' costs in 2000. Another example is the Fish and Wildlife Service in the Department of the Interior, which is responsible with identifying, protecting and recovering threatened and endangered species, many of which are imperiled as a result of habitat loss due to livestock grazing. Federal agency accounting does not operate transparently, failing to apportion costs explicitly to grazing on public lands. Instead these costs are dispersed among a plethora of programs. Agencies also

change budget organization, thus masking trends. Poor accounting practice makes it nearly impossible for anyone inside or outside the agency to estimate the full costs of the grazing program. In addition to federal costs, state, county and local governments as well as private institutions and individuals also pay costs as a result of the federal grazing program such as water treatment, flood mitigation and State game and fish management. Taking into account the many direct and indirect federal expenditures that benefit or compensate for impacts of livestock grazing on federal lands, the full cost of the federal grazing program to the U.S. Treasury is likely to approximate \$500 million annually. Considering the many other indirect costs borne by state and local government agencies, individuals and private institutions due to resource damage and impaired opportunities for recreation and other non-commercial land uses, the full cost to the U.S. public could approach \$1 billion annually. Assessing the full cost Introduction 3 Introduction A number of federal land management agencies permit livestock grazing on federal public lands in the United States. A fee is usually charged for the privilege of using federal public lands for this purpose. The two agencies with the largest such programs are the Bureau of Land Management (BLM) in the Department of Interior, and the Forest Service (FS) in the Department of Agriculture, mostly on lands in the western U.S. All other federal agencies with a land base, including the National Park Service, Fish and Wildlife Service, Department of Defense and Bureau of Reclamation, permit some grazing on lands they administer. State Trust lands are the other major category of public lands that are permitted to livestock grazing. However, the focus of this paper is on federal public lands, and the use of the term “public lands” should be understood hereafter to apply only to federal lands. It has long been known that the federal livestock grazing program is run at a significant loss. Grazing fees collected by the land management agencies cover only a fraction of the direct costs of the program. This shortfall is covered by Congressional appropriations from U.S. Treasury funds. These costs can be termed “direct costs” because they are appropriated explicitly for the federal grazing program. Several attempts have been made to estimate the presumably much larger indirect costs of the program to the public. Indirect costs to the public are those payments made by various entities either to support or subsidize ranching on public lands, or to compensate or mitigate for the ecological and other impacts of such activities. Indirect costs can be broken into federal and non-federal portions. Federal indirect costs include all the budget items of federal agencies that are not explicitly devoted to the public lands range management program, but which nonetheless actually support and subsidize, or compensate for damage caused by public lands ranching. Rogers (1999) examined agency budgets and reported a net loss of \$94 million for the combined BLM and FS grazing program in 1998. To this he added an estimate of \$14 million for the indirect cost of the Animal Damage Control program, which kills wildlife to benefit public lands ranching, to arrive at a minimum estimate of \$108 million for the full cost of the program to the U.S. Treasury. Hess and Wald (1995) estimated \$500 million per year for the annual net cost of the federal grazing program across all federal agencies. Another more recent estimate put this figure at \$460 million (The Economist 2002). However, neither of these reports gave detailed justification for these estimates. Jacobs (1991) did a more detailed examination of agency expenditures and arrived at an estimate of \$200-\$250 million for direct and indirect costs of the combined FS and BLM grazing program using “an educated guess” that 25 percent of the BLM budget and 5-7 percent of the Forest Service budget directly or indirectly supports the range program (Jacobs 1991 p 389). Jacobs also summarized all the other indirect costs of public lands grazing borne by other federal, state and local agencies, and Assessing the full cost Introduction 4 gave an estimate of \$1 billion for the full cost of the program to taxpayers (Jacobs 1991 p.401). None of the federal agencies account for indirect costs in a transparent manner that permits unambiguous estimation of the full costs of the grazing program. As a result, good quantitative estimates of these costs are generally not obtainable. However, the scale of these indirect costs to the Treasury can be assessed by listing the programs involved, and in a few cases by citing concrete examples where firm estimates of the indirect costs are possible. Non-federal indirect costs include expenses borne by all the state and local government agencies, as well as non-government institutions or individuals as a result of ranching operations on federal public lands such as flood mitigation or lost recreation opportunities. As for federal indirect costs, obtaining quantitative estimates for such costs is not presently possible, as no explicit accounting is made for costs due to public lands ranching. This paper

reports current estimates of the direct costs to the U.S. Treasury of the federal grazing program of the Bureau of Land Management and the Forest Service. The many indirect costs of the federal grazing program are also presented and discussed in appendices. Assessing the full cost Public Lands Ranching 5

**Public Lands Ranching HISTORY** In the 1890s, following several decades of unregulated livestock grazing, as well as timber extraction, mining and homesteading, in the western United States, most forested lands not already privatized were withdrawn from privatization under various land laws and designated as “forest reserves.” In 1905, control of these lands was assumed by the newly established Forest Service and the lands renamed “national forests.” The Forest Service did not regulate grazing use initially, but rather helped create and enforce allotment boundaries. All forest grazing fee receipts were reserved for forest management. The Forest Service charged ranchers 6 cents per month for cattle and 2 cents per month for sheep. Over the following fifteen years, grazing receipts outweighed receipts from timber cutting and other resource extraction (O’Toole 1994a). Outside the national forests, homesteading and unregulated grazing on public lands continued until passage of the Taylor Grazing Act of 1934, which directed the Secretary of the Interior “to stop injury to the public grazing lands by preventing overgrazing.” A newly established Division of Grazing (renamed the Grazing Service in 1939) delineated allotments, issued grazing permits and collected fees. Seventy-five percent of these fees, which initially consisted of 5 cents per month for each head of cattle, were directed to range improvements and other costs attributable to the grazing program, while the remaining 25 percent went to the Federal Treasury (O’Toole 1994a). In 1946, the Grazing Service and General Land Office were merged to form the Bureau of Land Management (BLM). In 1976, the Federal Land Policy and Management Act (FLPMA) established a Range Betterment Fund into which half of all BLM grazing fees were to be directed for range developments. The concurrent National Forest Management Act (NFMA) of 1976 allowed the Forest Service to fund range improvements out of timber receipts. The Public Rangelands Improvement Act (PRIA) of 1978 fixed grazing fees on both Forest Service and BLM lands in sixteen western states<sup>1</sup> according to a formula still used today. 1 Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming (43 U.S.C. 1902 (i))

**Assessing the full cost Public Lands Ranching 6**

**THE PUBLIC RANGE** Forty-eight percent of the eleven western states<sup>2</sup> — a landmass 361 million acres in area— is owned by the American people and managed by the federal government. Of this total, the Forest Service and the BLM together manage about 320 million acres, of which approximately 258 million acres or 81 percent, are grazed by privately owned livestock (O’Toole 1994a). There are approximately 23,600 public lands ranchers representing about 6 percent of all livestock producers west of the Mississippi River (Mathews et al. 2002). Livestock grazing permits are issued on public lands on the basis of an annual fee paid per animal unit month (AUM), defined as the amount of forage required to sustain a cow and calf, or five sheep, for one month. Other federal land management agencies also permit livestock grazing (O’Toole 1994a):

- The Fish and Wildlife Service permits livestock grazing on a number of wildlife refuges for \$5.50/AUM;
- The Bureau of Indian Affairs allows livestock use on Indian reservations, charging similar rates to those of nearby private landowners;
- The National Park Service, largely in response to Congressional mandates, allows grazing in several national parks;
- The Department of Defense allows grazing on some military bases and determines fees according to various mechanisms, including an assessment of fair market value.

In addition, large tracts of State Trust lands are leased for grazing in the western states, and many ranchers hold both federal and state grazing permits. States vary considerably in grazing management expenditures and methods of fee determination. The remainder of this paper deals exclusively with grazing on Forest Service and BLM lands in the western United States, which constitute most of the public lands on which livestock are permitted. Power (2002) estimates that public lands presently contribute four percent of all beef and cattle feed in the United States, including forage and feedgrains. Public lands ranching accounts for about 0.1 percent of western employment and income.

**FOREST SERVICE LANDS** The Forest Service controls approximately 144 million acres in the western U.S. outside of Alaska. Ninety-one million of these acres (63 percent) are open to

2 Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

**Assessing the full cost Public Lands Ranching 7** livestock grazing. Most national forest lands are at higher

elevations and are frequently used for summer pastures. Lower elevation lands which are more valuable for livestock in the winter months, passed quickly into private hands during the homesteading era. But many of those private ranches rely on the Forest Service lands for summer forage. Grazing is administered primarily through issuance of ten year term permits for discrete grazing allotments. Ranchers must own adjacent ranchland called "base property" to qualify for a grazing permit. In addition to the national forests designated at the end of the nineteenth and the beginning of the twentieth centuries, the federal government recovered millions of acres of failed western homesteads during the Great Depression, under the authority of the Bankhead-Jones Farm Tenant Act of 1937. Many of these lands in California, Montana, New Mexico, and Texas were transferred to BLM management, while other large parcels came under Forest Service management as "national grasslands." Fees for grazing on national grasslands are calculated similarly to, but at slightly higher rates, than the fees on other Forest Service and BLM lands. National grasslands cover about four million acres, less than three percent of Forest Service lands in the western states. In eastern national forests, which account for a tiny portion of all Forest Service grazing, the fee is assessed by competitive bidding or market-based comparisons. Prices can run very close to those for private grazing land, with one bid going as high as \$25 per AUM in recent years (Herman 2002). Most grazing capacity, measured as AUMs on Forest Service land, are located in the West, with the Rocky Mountain Region having the most capacity (Figure 1). BUREAU OF LAND MANAGEMENT LANDS Exclusive of Alaska, the BLM manages almost 179 million acres, 99 percent of which are in the eleven western states. Approximately 167 millions acres (93 percent) are authorized for livestock grazing. The BLM manages three types of grazing lands: (1) Homesteads recovered under the Bankhead-Jones Act (see above); (2) lands in grazing districts, under which permits are issued similar to those of the Forest Service, and limited by the Taylor Grazing Act and subsequent amendments to 150 million acres; and (3) the remaining 17 million acres outside of grazing districts, for which leases are issued with fewer requirements than those included in permits. Assessing the full cost Public Lands Ranching 8 Figure 1. Forest Service grazing permitted in selected western states as percent of total AUMs (USDA Forest Service 2000). Figure 2. BLM grazing permitted in selected western states as percent of total AUMs (USDI Bureau of Land Management 2001). Assessing the full cost Grazing fee income 9 Grazing fee income HISTORY OF THE FEE Charging fees for grazing livestock has been Forest Service policy since 1906. The BLM, and its predecessor, the Grazing Service, has charged fees since 1939. In the early 1900s, the Forest Service assessed fees by comparison with those of similar privately-owned range, so as to approximate fair market value. However, fees were later held constant for five years, thus inaugurating a de facto policy of deciding fees independently from private land grazing charges, which continued to rise (O'Toole 1994a). Before World War II, Forest Service officials reasoned that they weren't in business to make money, but that they ought to recover costs to the taxpayers. Accordingly, they based fees not on market value but on the cost of providing the forage, which varied from forest to forest (O'Toole 1994a). Subsequent Forest Service regulations required that fees be set on the basis of an Office of Management and Budget circular of 1959, which directed that "fair market value" be obtained (36 C.F.R. §222.50 (b)). In 1978, the Public Rangeland Improvements Act (PRIA) established a fee formula on an experimental basis for Forest Service and BLM grazing operations in the sixteen western states, with the objective to "prevent economic disruption and harm to the western livestock industry." The PRIA formula is based on the value of forage to ranchers rather than the cost to the taxpayer of providing the service. This was to be achieved by linking annual changes in the fee to "annual changes in the cost of production" (43 C.F.R. §4130.8-1). In reality, the fee formula is flawed, as it deducts annual increases in rancher costs twice but adds in annual increases in beef prices-paid to ranchers only once (GAO 1991a, Torell et al. 2001). Consequently, the fee fails to track changes in market rates, and in recent years has barely risen above the regulatory minimum of \$1.35/AUM. In 2002, the PRIA-derived grazing fee was set at \$1.43/AUM, while the average market rate in the sixteen western states was reported to be \$13.10/AUM. Market rates vary from a low of \$7.00/AUM in Arizona to a high of \$20.60 in Nebraska (National Agricultural Statistics Service 2002.) Fair market value is the price that a willing buyer and a willing seller agree to, provided both know the value of the product. The PRIA formula approximates only what a willing buyer of public forage would pay, not how much a willing seller (i.e. the public) might

demand. Since the agencies and Congress represent the sellers, one would expect them to incorporate all costs to the taxpayer into the formula in order to meet any reasonable definition of fair market value. The late Congressman Mike Synar (OK) made efforts throughout the 1980s and early 1990s to increase the federal grazing fee toward fair market value, Assessing the full cost Grazing fee income 10 commissioning General Accounting Office reports and initiating legislation in Congress. In the early 1990s, the Clinton administration moved to reform the management of public rangelands through a wide-ranging revision of the fee formula as well as BLM administrative regulations, known as Rangeland Reform '94 (USDI and USDA 1994). A new base rate for the years 1990-1992 of \$3.96/AUM was proposed with annual adjustments based solely on changes in a Forage Value Index and a cap of 25 percent change per year. This reform was predicted to greatly increase cost recovery for the U.S. Treasury. Revenues from the increase were projected to be \$76 million over five years, beginning with an increase of \$6 million in 1994, increasing to \$35 million in 1997. By comparison, actual receipts for 1992 were about \$10.7 million. Ultimately, the fee reform was never adopted, however. Proponents of the current formula argue that public rangeland is not as high quality as private rangeland, thus accounting for the disparity in fees. However this argument neglects to account for the fact that on both private and public lands the fee is calculated per AUM rather than per acre. An AUM is the quantity of forage needed to sustain a cow and calf for one month. Lesser value forage requires a larger tract of land to sustain the animals for the same period of time. Thus, to a large extent, variation in forage quality is covered by basing fees on AUMs of use. It has also been suggested that costs to run cattle on public lands are higher than costs on private lands. In fact, private ranchers spend up to \$40 more per head of cattle than public lands ranchers (USDI and USDA 1994). Furthermore, ranchers who do not have public permits often sublease public lands (legally in some cases on BLM lands, but usually illegally) at market rates several times more than what the permittee pays. This indicates that public rangeland is comparable to private, unirrigated rangeland and is undervalued by the present fee formula (GAO 1986).

**DISTRIBUTION OF FEE INCOME**

Forest Service grazing fee income is divided as follows: 50 percent to the Range Betterment Fund which is used solely for construction of range developments such as fences, cattleguards, tanks, pumps and pipelines by local agencies; 25 percent to states and counties (some of which may also support ranching), and 25 percent to the U.S. Treasury. By authority of the Taylor Grazing Act, approximately 90 percent of BLM grazing lands are administered by permits and 10 percent under less stringent leases. Bankhead-Jones lands are a negligible component and are not discussed further here. The U.S. Treasury receives nothing from leased land, and 37.5 percent from lands in grazing districts. At present, approximately 21.6 million AUMs are permitted throughout the West. At present fee levels, the Forest Service and BLM collect approximately \$21 million in fee receipts, or 97 cents per permitted AUM, on an annual basis. Actual use is always less than permitted use, and fees are charged only on actual use. Currently Assessing the full cost Grazing fee income 11 actual use is about 14.5 million AUMs or 67 percent of permitted grazing use for the period 2000-2001. From 1988-1997 actual use declined greatly and grazing fee receipts declined by a third or more, although numbers of permitted AUMs declined only slightly (Mathews et al. 2002). If the average market rate of \$13.10/AUM were applied, as much as \$190 million could be available to agencies and to the Treasury from fee receipts, assuming the demand for forage remains at the same level, as the federal agencies concluded in Rangeland Reform '94 (USDI & USDA 1994).

Table 1. Distribution of fee receipts by agency and land classification.

Type of land	Area of land	Payments to Counties	Range Betterment Funds	U.S. Treasury	Forest Service
16 western states (excl TX)	25 %	50 %	25 %	BLM Section 3 (permits)	90 % of BLM land
12.5 %	50 %	37.5 %	BLM Section 15 (leases)	10 % of BLM land	50 %
50 %	50 %	0 %	BLM Bankhead- Jones		

[http://www.biologicaldiversity.org/programs/public\\_land/grazing/pdfs/assessing\\_the\\_full\\_cost.pdf](http://www.biologicaldiversity.org/programs/public_land/grazing/pdfs/assessing_the_full_cost.pdf)

## [Federal Public Lands Grazing Fee](#)

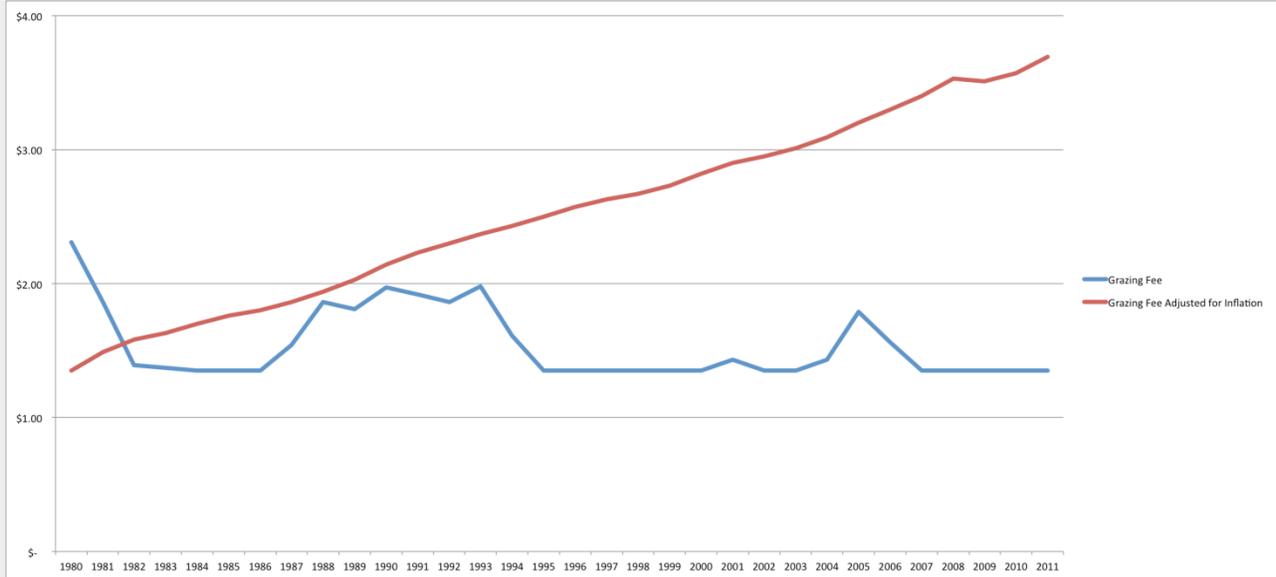
Western Watersheds Project has relentlessly pursued a fair grazing fee on federal public lands. In 2003, as [part of our comments](#) on the Bush Administration's proposed changes to BLM grazing regulations (regulations that have since [been overturned and repeatedly tossed out by the courts](#)), we suggested that the agency reform the fee formula, a reform that had been proposed many times since the formula was established under the [Public Rangelands Improvement Act](#) (PRIA) of 1978. They did not take our recommendations.

In 2005, we joined with other conservation organizations in [submitting an Administrative Procedures Act petition](#) asking the Department of Interior and the Department of Agriculture to address the grazing fee formula. Having gotten no answer by 2010, we filed a lawsuit against the government to compel their response.

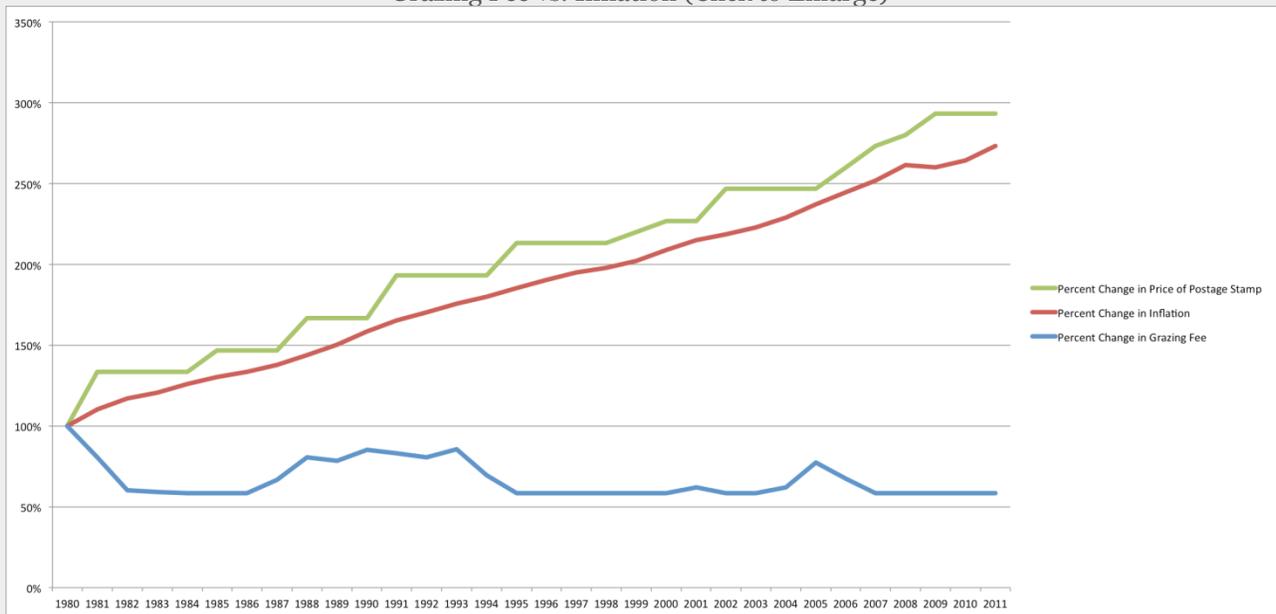
In 2011, we got our answer from [DOI](#) and [USDA](#): "No."

In 2012, the Obama Administration responded to our concern by [proposing to assess a \\$1 fee](#) to supplement the insufficient fee set by the PRIA while the Department of Interior promulgates a rule-making process aimed at recovering the costs of the federal grazing program. Because this step is a part of the Obama Administration's Proposed 2013 Budget, it will need to survive Congress prior to taking effect.

While this move comes nowhere near what is needed, it does signal a step in the right direction. The current grazing fee formula is flawed, fails to cover the costs of administering the federal grazing program [by a wide margin](#) – a margin even wider when one [considers the ecological costs](#) incurred by this land use practice. And yet, year after year, the taxpayers make up the difference between what commercial livestock operators pay and what it cost American taxpayers to graze public land.



Grazing Fee vs. Inflation (Click to Enlarge)



Percentage Change (Click to Enlarge)

WWP will keep fighting for a fair fee, one that keeps up with inflation and grazing fees on private and state trust lands around the West. If our public lands must withstand grazing abuse, at least let's get the money to restore them into the public coffers.

### Associated Documents

[https://www.youtube.com/watch?t=3&v=XoVn\\_s7yJxE](https://www.youtube.com/watch?t=3&v=XoVn_s7yJxE)

[Assessing the Full Cost of the Federal Grazing Program](#) 

[GAO: Livestock Grazing – Federal Expenditures and Receipts Vary, Depending on the Agency and](#)

[the Purpose of the Fee Charged, September 2005](#) 

[2012 WWP Letter to USFS on Grazing Budget](#) 

[Recovering \\$600 Billion By Collecting the Rent On Our Public Lands](#) 

[Petition for rulemaking to amend the grazing fee regulations to reflect the fair market value of federal forage](#) 

[Department of Interior Response to Rulemaking Petition to Amend Grazing Fee Regulations](#) 

[Department of Agriculture Response to Rulemaking Petition to Amend Grazing Fee Regulations](#) 

<http://www.westernwatersheds.org/public-lands-ranching/federal-grazing-fee/>

## **Population**

- Unsubstantiated Current Wild Horse Population

Complete, consistent, accurate and scientific documentation of the recent BLM stated increase of the Pine Nut wild horse population must be included in any proposal stemming from this draft. As noted further in this letter, the increases and decreases of the Pine Nut annual population census are not substantiated by any research documentation. In addition, the BLM now indicates that the annual increases have been enormous and apparently completely ignores fertility treatments of at least 43 mares with PZP in 2010. Documentation needs to be provided by BLM; i.e. aerial photos and summary reports to substantiate the claimed wild horse population increase. The BLM claims that a population increase from the 2010 level of 120 wild horses to the approximate level of 332 wild horses in 2015 implies an annual increase of 25%. Questions must be answered regarding the validity of a high rate of increase, given that all 2010 captured mares were given the fertility contraceptive that would have prevented almost all foaling during the subsequent years affected by the contraceptive drug., i.e. at least the foaling seasons of 2012 and 2013.

[https://www.blm.gov/epl-front-office/projects/nepa/42589/52583/57278/Signed\\_Decision.pdf](https://www.blm.gov/epl-front-office/projects/nepa/42589/52583/57278/Signed_Decision.pdf)

## **BLM “Fluffed Science” VS Validated Scientific Research**

I have specific and strong objections to erroneous and non-verified BLM statements regarding wild horse herd population increases. Just because BLM has said it over and over does not make it scientifically valid. The NAS report stated, “The recent National Academy of Science (NAS) report on the Wild Horse and Burro Program determined that the Bureau of Land Management (BLM) has **no evidence of excess wild horses and burros; because the BLM has failed to use scientifically sound methods to estimate the populations**” (NAS, 2013). Any upcoming BLM document regarding the Pine Nut wild horses must provide provable scientific data research that proves any past or current Pine Nut herd population estimates. These BLM statements must be scientifically accurate and proven with facts and data as done with this recent scientific research report (below) that I require be reviewed and included in any upcoming Pine Nut wild horse documents. As required by NEPA to bring federal action in line with Congress' goals and to foster environmentally informed decision-making by federal agencies, NEPA “establishes ‘action-forcing’ procedures that require agencies to take a ‘hard look’ at environmental consequences.” *Metcalf v. Daley*, 214 F.3d 1135, 1141 (9th Cir.2000) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348, 109 S.Ct. 1835, 104 L.Ed.2d 351 (1989)). The National Environmental Policy Act (NEPA) requires that to ensure that environmental assessment statements reflect a careful consideration of the available science, and that areas of disagreement or uncertainty are flagged rather than being swept under the carpet. Thus, the public and the decision makers must resist the urgings of agencies that low-probability risks of very serious harms be dismissed from consideration or that the risk is evaluated only under the agency’s favored theoretical model without taking into account the possibility that other credible models might be correct. For all the above reasons, I require the following true independent scientific research report be provided to the public and included in any document regarding the Pine Nut wild horse herd decisions or proposals.

## **WILD HORSE POPULATION GROWTH**

Research Collaboration by  
Kathleen Gregg Environmental Researcher  
Lisa LeBlanc Environmental Researcher  
Jessica Johnston Environmental Scientist  
April 25, 2014

## INTRODUCTION

The recent National Academy of Science (NAS) report on the Wild Horse and Burro Program determined that the Bureau of Land Management (BLM) has no evidence of excess wild horses and burros; because the BLM has failed to use scientifically sound methods to estimate the populations (NAS, 2013). The NAS cited two chief criticisms of the Wild Horse and Burro Program: unsubstantiated population estimates in herd management areas (HMA), and management decisions that are not based in science (NAS, 2013).

Effective wild horse and burro management is dependent on accurate population counts and defensible assumptions. The Bureau of Land Management (BLM) routinely uses the assumption that wild horse and burro herds increase annually at an average rate of 20%. However, our review of available scientific literature combined with an analysis of BLM data for 5,859 wild horses found that approximately 50% of the foals survived to the age of 1 year, which indicates a 10% population growth rate based on yearling survival rates.

## METHODS AND DATA

The data and analysis is based on the BLM's wild horse and burro removal and processing documents acquired under the Freedom of Information Act. The data sets were evaluated separately, and then combined to total 5,859 wild horses, captured, aged, and branded by BLM. This data is the basis for the analysis in this report and the accompanying chart in table 1 below.

Burro data was also calculated for foal and yearling survival. That data indicated a 7% population growth rate for burros based on yearling survival, but that data is not included here as burros are not present in all of the HMAs.

The data was collected from 4 herds captured by BLM in Nevada and California in 2010 and 2011. The data below in table 1 shows the individual herds and accumulated age structure data which supports the overall conclusion. Wild horse foals and yearlings were tallied for population increases and in all four samples, recorded a combined foaling rate of less than 20%, but only half or 50% survived to the age of 1 year (see table 1 below).

**Table 1 Age Structure Yearling Survival Rate**

Herd Area	ROUNDUP DATE	HORSES PROCESSED PER FOIA	TOTAL FOALS CAPTURED	% OF FOALS	TOTAL YEARLINGS CAPTURED	% OF YEARLINGS	SURVIVAL RATE OF FOALS REACHING ONE YEAR
Calico	Dec 2009-Jan 2010	1848	378	0.2045	248	0.1342	0.6561
Twin Peaks	Aug-Sept 2010	1535	302	0.1967	147	0.0958	0.4868
Triple B	Jul-Aug 2011	1226	243	0.1982	134	0.1093	0.5514
High Rock/Fox Hog	Oct-Nov 2011	1250	245	0.1960	81	0.0648	0.3306
Totals		5859	1168	0.7955	610	0.4041	2.0249
Averages				0.1989		0.1010	0.5062
				average herd increase using foal rate		average herd increase using yearling rate	average yearling survival rate

## DISCUSSION

This research does not include or reflect the additional adult mortality rates due to the complexity of population dynamics, but does raise serious questions about the validity of the BLM's assumed 20% annual herd population growth rate. Furthermore, the BLM's assumption fails to consider that wild horse populations are dynamic due to isolation and have varied rates of reproduction and survival due to changing climates, forage, competition, disturbance and environmental conditions. All these are factors that can lead to varied herd growth rates and each herd should be evaluated separately.

This research paper is supported by previous studies using age structure data completed by Michael L. Wolfe, Jr. in 1980 titled "Feral Horse Demography: A Preliminary Report". Mr. Wolfe cited observations in 12 HMAs, over a period of 2 to 5 years, and covered a much broader range over six Western states. He questioned the annual rate increase of 20%, and found that first-year survival rates to range between 50% and 70% (Wolfe, 1980).

Other supporting research includes The National Academy of Science National Wild and Free-Roaming Horse and Burro report of 1982, which states, "...several biases in the (BLM) census data, cited or calculated rates of increase based on a number of published values for reproduction and survival rates, as well as sex and age ratios, and concluded annual rates of increase of ten percent or less" (NAS, 1982).

The NAS 2013 report also used age structure data to estimate population growth. However, the report used foaling rates to draw conclusions about the population growth; rather than first year survival rates (NAS, pg.51-52 2013). This and other studies challenge the assumption that the 20% foaling rate provides an adequate measure of population growth.

The BLM bases their management decisions on environmental assessments that cite inflated population estimates. As shown in this study and previous research, the BLM's assumption of a 20% annual wild horse population growth rate is not based in science; leading to unsubstantiated population estimates with no evidence of excess wild horses.

~ ~ ~

The above research verifies that there is a reasonable likelihood of a 20% average annual increase of wild horse **foals** born but only half of those survive to the age of yearling (i.e. less than reproductive age). Therefore a wild horse herd will not be physically able to increase annually more than 10%. As the report states, in addition to the 10% of herd yearling survival

rate, adult mortality must be factored into the equation which would reduce the mathematical and scientific possibility of a herd escalation even further below the average 10% annual herd increase.

The National Environmental Policy Act (NEPA) requires that to ensure that environmental assessment statements reflect a careful consideration of the available science, and that areas of disagreement or uncertainty are flagged rather than being swept under the carpet. Thus, the public and the decision makers must resist the urgings of agencies that low-probability risks of very serious harms be dismissed from consideration or that the risk is evaluated only under the agency's favored theoretical model without taking into account the possibility that other credible models might be correct.

### **BLM Shows Lack of Validity - Population Count**

Table A

Date	BLM Population per BLM Herd Stats	Increase or Decrease per BLM Herd Stats	Percentage Increase or Decrease	Increase or Decrease per BLM 2015 Draft	BLM Population per 2015 Draft	PZP a factor?	Notes
3/1/2010	215						
Spring Foals @ 20%		43	20%				
11/25/2010				-65 or -46?			Removed during November Capture
3/1/2011	182						
				-4		Yes 43 mares	22% Increase
3/1/2012	218				293		
				-12			
				-2		Yes 43 mares	40% -61% Increase
3/1/2013	293						34% Increase

				-19		
3/1/2014	351				280	
						At least 72 Horses disappeared without a roundup per BLM Herd Stats?
				-6		
3/1/2015	279				336	

The above chart shows a lack of validity for the estimated current wild horse population on the Pine Nut HMA – for many reasons including but not limited to:

- 1) Depending on if the BLM Herd Stat data is used or the combination of Herd Stat and Draft data is used, the annual population increases range from 22% to 61%.(yellow)
- 2) The BLM Herd Stats and the Draft data are not in agreement although both are provided to the public as fact by the BLM. (red)
- 3) The annual population increases not only are highly inflated but they obviously do not factor into consideration that at least 43 mares were given PZP in 2010 which would highly effect the population increase for at least they years of 2012 and 2013 when these 43 mares would not have produced foals.
- 4) The BLM Herd Stat data show a loss of at least 72 horses between 2014 and 2015 although no capture removals were done – with the exception of 6, as noted.
- 5) In one portion of the draft, it is noted that 46 wild horses were removed in the November 2010 capture/removal and in another section of the draft it is state that 65 wild horses were removed at that time. Which is it? This kind of inconsistency is ongoing with the BLM and appears to be purposeful deceitful aimed at the public.(green)
- 6) As noted in the above scientific research study, although a 20% annual increase in foals is common, only about half survive to the yearling age – therefore only half of the foals born even survive to the age of reproductively. Therefore, a wild horse herd will not and cannot increase more than 10% per year. In addition, adult mortality must be factored in which would lower even the 10% annual increase. BLM has not taken any of this valid science into consideration with its 20% and higher annual herd increases.

For all the reasons above, the public cannot be sure the BLM rigorously evaluated the available science regarding herd increase and survival or how BLM arrived at its conclusions because without citations to specific sources for the scientific analysis, the public cannot know what information the BLM gleaned from which sources, or how BLM arrived at its often-used but erroneous population statements. This is completely unacceptable and borders on fraudulent information being fed to the public.

The National Environmental Policy Act (NEPA) requires that to ensure that environmental assessment statements reflect a careful consideration of the available science, and that areas of disagreement or uncertainty are flagged rather than being swept under the carpet. Thus, the public and the decision makers must resist the urgings of agencies that low-probability risks of very serious harms be dismissed from consideration or that the risk is evaluated only under the agency's favored theoretical model without taking into account the possibility that other credible models might be correct.

### **Wild Horse Population and Predation**

“A more in-depth study of lion predation on wild horses encompassing the portions of the Virginia Mountain Range, Carson Range, and Pine Nut Mountains in western Nevada is being conducted by Alyson Andreasen of the University of Nevada at Reno. Though not yet published, preliminary results of her study (as disclosed in several presentations)<sup>12</sup> indicate that lions were responsible for more predation events on wild horses than would have been expected. In her study, a total of 32 lions have been collared and their kill sites (determined by a clustering of GPS signals) have been investigated. Approximately 13 of the collared lions have access to wild horses as prey. Of those, 77 percent (10 of 13, including both males and females), regularly consume horses as prey, and predation events have been documented year-round. Based on the results of dietary composition analysis, several lions clearly prefer wild horses as prey, with over 70 percent of their diet consisting of wild horses. Overall, of a total of 160 ungulate kills located and inspected, 126 were wild horses and 34 were mule deer.”

<https://www.yumpu.com/en/document/view/44911770/overview-of-the-management-of-wild-horses-and-burros>

This above reference scientific research must be included and considered in the upcoming Pine Nut NEPA document, in connection to predators and their relationship to wild horses on the Pine Nut HMA. The National Environmental Policy Act (NEPA) requires that to ensure that environmental assessment statements reflect a careful consideration of the available science, and that areas of disagreement or uncertainty are flagged rather than being swept under the carpet. Thus, the public and the decision makers must resist the urgings of agencies that low-probability risks of very serious harms be dismissed from consideration or that the risk is evaluated only under the agency's favored theoretical model without taking into account the possibility that other credible models might be correct.

## **Livestock Grazing**

If BLM has purports that there is not enough forage and habitat for the horses, even though the BLM permits thousands of cattle and sheep to graze on these same public lands, despite the fact that, unlike the wild horses, the livestock are not required to be "protected" as an "integral part of the natural system of the public lands." 16 U.S.C. § 1331. In choosing these scientifically unsound, controversial, untested, and radical approaches for the management of wild horses, the BLM has violated its obligations under the Congressional Wild Horse and Burro Act to "protect and manage" these "wild and free-roaming" horses and burros as "living symbols of the historic and pioneer spirit of the West" and to ensure that "all management activities shall be at the minimal feasible level." Id. §§ 1331, 1333(a). The BLM also violates its obligations under the National Environmental Policy Act ("NEPA"), 42 U.S.C. §§ 4321-4370f, by failing to adequately analyze the environmental consequences of its decision on the individual wild horses or the herds as a whole; failing to consider reasonable alternatives such as reducing the amount of livestock permitted on these lands.



(Above) Photo Shows the Destruction to a Riparian Area Caused By Hundreds of Private/Corporate Domestic Livestock “Camped Out” in a Lake Bed on Public Land

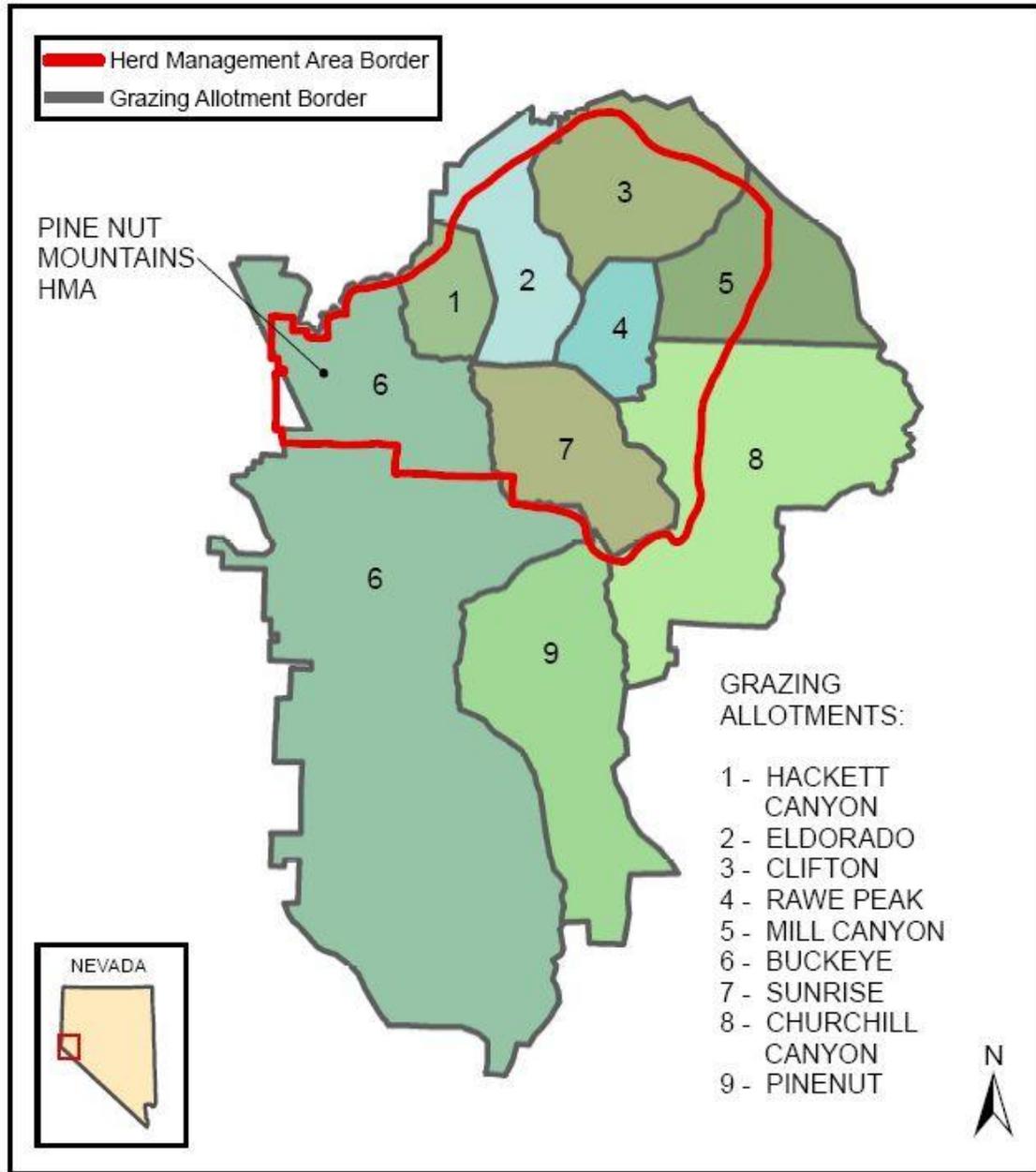
As made clear by the Wild Horse and Burro Act’s implementing regulations, the BLM “may close appropriate areas of the public lands to grazing use by all or a particular kind of livestock . . . **if necessary to provide habitat for wild horses or burros**, to implement herd management actions, or to protect wild horses or burros from disease, harassment or injury.” 43 C.F.R. § 4710.5(a). Removal or reduction of domestic livestock which provides financial gain for any private or corporate owned institution must be activated in favor of protecting the land and the wildlife and wild horses and wild burros and their habitat that belong to the American people. By law the BLM can and should close appropriate areas of public lands to grazing use by all domestic livestock, if necessary, to provide habitat for wild horses or burros; to implement herd management actions; or to protect wild horses or burros from disease, harassment, or injury. 43 C.F.R. § 4710.5. It is the law of the United States of America.

Under the Taylor Grazing Act ("TGA"), 43 U.S.C. §§ 315-315r, the Secretary of the Interior, through the BLM, is "authorized" to issue permits for the grazing of livestock on public lands "upon the payment of reasonable fees." 43 U.S.C. § 315b. The statute further provides, however, that "the creation of a grazing district or the issuance of a [grazing] permit . . . shall not create any right, title, interest, or estate in or to the lands." The TGA further provides that the Secretary "is authorized, in his discretion, to . . . classify any lands within a grazing district, which are . . . more valuable or suitable for any other use" than grazing, including use by wild horses.

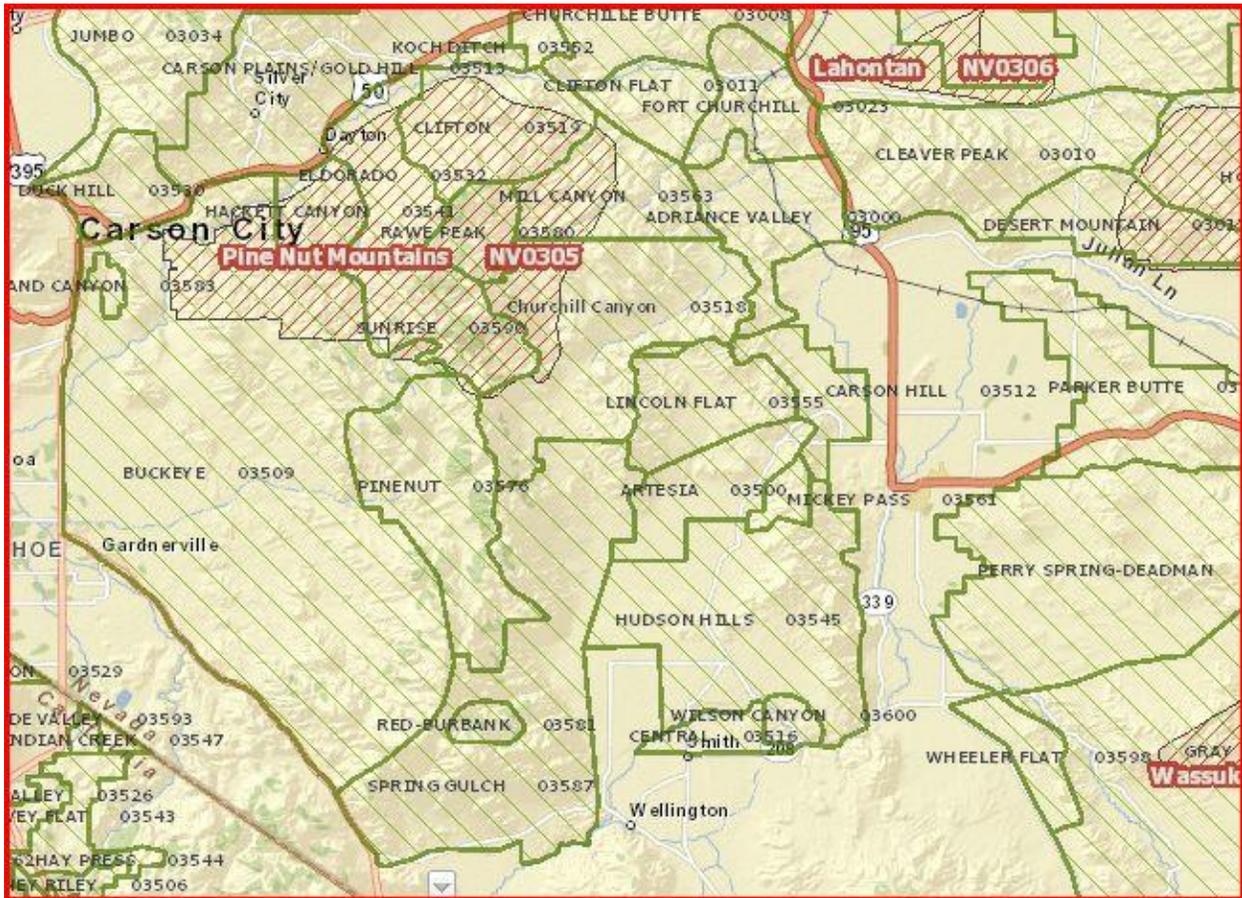
Per the 1971 Congressional Wild Horse and Burro Act, the land is to be devoted PRINCIPALLY although not exclusively to the wild horses and wild burros' welfare in keeping with the multiple-use management concept of public lands. Definition of "principally": First, highest, foremost in importance, rank, worth or degree, chief, mainly, largely, chiefly, especially, particularly, mostly, primarily, above all, predominantly, in the main, for the most part, first and foremost.

Wild horses and burros are legally *DESIGNATED* on the Herd Management Area (HMA) and livestock are only *PERMITTED*. Definition of the word "designated" is to "set aside for" or "assign" or "authorize". Definition of "permit" is to "allow" or "let" or "tolerate". The Wild Horse and Burro lands and resources are set aside for, and assigned and authorized for, the use of wild horses and burros whereas the livestock is only allowed and tolerated and let to use the public range resources. While commercial livestock grazing is permitted on public lands, it is not a requirement under the agency's multiple use mandate as outlined in the Federal Land Policy and Management Act of 1976 (FLPMA). Public land grazing clearly is a privilege not a right, while the BLM is mandated by law to protect wild horses and burros.

# Pine Nut Mountains Herd Management Areas and Associated Grazing Allotments of Nevada



Source: Bureau of Land Management, Nevada State Office  
Universal Transverse Mercator Projection UTM Zone 11N



**UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
AUTHORIZED USE BY ALLOTMENT REPORT**

Print Date 05/06/2015

**NV03509 BUCKEYE**

NV  
NEVADA  
LLNVC02000  
SIERRA FRONT FO  
03509  
BUCKEYE  
AMP IMPLEMENTED  
04/01/1986

Authorization Number	Administrative State	Administrative Office	Administrative Authorizing Office	Effective Date	Expiration Date	Issue Date	Actual Active AUMS	Actual Suspended AUMS
2703508	NV	LLNVC02000	SIERRA FRONT FO	04/01/2006	03/31/2016	06/05/2006	1471	0

### Authorization Information

Allotment Number	Allotment Name	Pasture Name	Authorization Number	Livestock Number	Livestock Kind	Period Begin	Period End	Public Land %	Type	Us e	AUM s
03509	BUCKEYE		2703508	375	CATTLE	04/01	09/15	71	ACTIVE		1471

### NV03518 CHURCHILL CANYON

NV  
 NEVADA  
 LLNVC02000  
 SIERRA FRONT FO  
 03518  
 CHURCHILL CANYON

Authorization Number	Administrative State	Administrative Office	Administrative Authorizing Office	Effective Date	Expiration Date	Issue Date	Actual Active AUMS	Actual Suspended AUMS
2703525	NV	LLNVC02000	SIERRA FRONT FO	06/01/2012	05/31/2022		1275	0

### Authorization Information

Allotment Number	Allotment Name	Pasture Name	Authorization Number	Livestock Number	Livestock Kind	Period Begin	Period End	Public Land %	Type	Us e	AUM s
03518	CHURCHILL CANYON		2703525	193	CATTLE	11/01	05/20	100	ACTIVE		1275

### NV03541 HACKETT CANYON

NV  
 NEVADA  
 LLNVC02000  
 SIERRA FRONT FO  
 03541

HACKETT CANYON

Authorization Number	Administrative State	Administrative Office	Administrative Office	Authorizing Office	Effective Date	Expiration Date	Issue Date	Actual Active AUMs	Actual Suspended AUMs
2700158	NV	LLNVC02000	SIERRA FRONT FO	O	04/14/2015	04/14/2024	04/14/2015	187	0

**Authorization Information**

Allotment Number	Allotment Name	Pasture Name	Authorization Number	Livestock Number	Livestock Kind	Period Begin	Period End	Public Land %	Type	Us	AUMs
03541	HACKETT CANYON	NORTH	2700158	205	SHEEP	03/15	06/30	100	ACTIVE		146
03541	HACKETT CANYON	SOUTH	2700158	11	CATTLE	03/15	06/30	100	ACTIVE		39

**NV03576 PINE NUT**

NV  
 NEVADA  
 LLNVC02000  
 SIERRA FRONT FO  
 03576  
 PINE NUT

Authorization Number	Administrative State	Administrative Office	Administrative Office	Authorizing Office	Effective Date	Expiration Date	Issue Date	Actual Active AUMs	Actual Suspended AUMs
2703505	NV	LLNVC02000	SIERRA FRONT FO	O	03/30/2012	03/31/2017	03/26/2012	1150	0

**Grazing Allotment**

**Authorization Information**

Allotment Number	Allotment Name	Pasture Name	Authorization Number	Livestock Number	Livestock Kind	Period Begin	Period End	Public Land %	Type	Us	AUMs
03576	PINE NUT		2703505	640	SHEEP	11/01	11/30	100	ACTIVE		126
03576	PINE NUT		2703505	640	SHEEP	07/01	08/31	100	ACTIVE		261
03576	PINE NUT		2703505	1600	SHEEP	06/01	06/30	100	ACTIVE		316
03576	PINE NUT		2703505	2268	SHEEP	11/01	11/30	100	ACTIVE		447

## NV03590 SUNRISE

NV  
 NEVADA  
 LLNVC02000  
 SIERRA FRONT FO  
 03590  
 SUNRISE

Authorization Number	Administrative State	Administrative Office	Authorizing Office	Effective Date	Expiration Date	Issue Date	Actual Active AUMS	Actual Suspended AUMS
2703831	NV	LLNVC02000	SIERRA FRONT FO	04/14/2015	04/13/2025		159	0

### Authorization Information

Allotment Number	Allotment Name	Pasture Name	Authorization Number	Livestock Number	Livestock Kind	Period Begin	Period End	Public Land %	Type	Us e	AUM s
03590	SUNRISE		2703831	52	CATTLE	03/15	06/15	100	ACTIVE		159

<http://www.blm.gov/ras/>



(Above Photo) Private/Corporate Domestic Livestock Standing Inside and Fouling the Water and Destroying a Water Trough and the Surrounding Habitat on Public Land

The "private domestic livestock for private/corporate profit" mentality is illegal when used in conjunction with legally designated wild horse and burro publically owned land and it must be stopped. Short or long-term sustainability and reducing "*the likelihood of adjustments to current active livestock permits attributable to overuse of resources*" of privately owned livestock for private profit domestic livestock management is an inappropriate and insignificant part of the BLM's mission to protect the American public's land and resources. BLM is not in the cattle and sheep business and is not authorized to be promoting private for-profit ranchers.

## **Pine Nut HMA Forests as a Factor in the Evaluation Plan**

An **ecosystem** is a community of living organisms in conjunction with the nonliving components of their environment (things like air, water and mineral soil), interacting as a system. Given the vegetation history of the Pine Nut Mountains, and the present broad extent of P-J forest on its slopes, it is appropriate that any management plan implemented there be viewed as a forest management project. Your project appears to understand that very well. In the implementation, however, it is essential that the widespread bias against forest, viewed as an enemy of range values, be carefully guarded against. Your mission is stated so broadly, it could cover virtually any management or mismanagement practice. An ecosystem is a wide-term for the entire area – be it the Pine Nut HMA or other – and all parts of the ecosystem work together to make a thriving ecological balance.

## **The Deforestation of Juniper – Some Thoughts**

*Compiled by Kathleen Gregg, Environmental Researcher*



*A Magnificent Very Old Juniper Tree – Twin Peaks Herd Management Area*

Deforestation is a global problem. We are rightly concerned about the current destruction of forests in other parts of the world, but it isn't always so apparent that humans have been clearing and destroying juniper woodlands here in the West.

Before Americans moved into the West, woodlands covered a large area of the land and the forest was rich and diverse. The structure of the forest was varied, and included a mosaic of denser woodland, different kinds of scrub, as well as open desert and prairie, which were all important parts of the whole matrix. Each ecosystem had unique communities or niches of specialist wildlife which overlapped into neighboring ecosystems – giving a healthy environment to our West.

Before intrusion by Euro-Americans, western wildlife flourished. Mountain lions, grizzly bears and wolves prowled the denser forest, and large herds of deer, antelope, elk, and other herbivores grazed open clearings, while skunks, beaver, porcupines, raccoons and other small mammals foraged through the ground plant litter. Bears scooped salmon from the rivers, elk grazed in the meadows created by the dams of beavers and birds were nourished by plants and animals.

Then, farmers and ranchers moved in with their non-native grazing animals – domestic cattle and sheep. In many areas farmers and ranchers harvested and burned the trees and resinous woods to encourage fresh growth of grasses for their domestic livestock. The combination of burning and grazing forced the woodland juniper into retreat as well as preventing it recolonizing bare areas. Their activities profoundly altered and continue to alter the natural ecosystem.

In the American West, through the past century or two, trees were felled for timber, fuel and to make way for agriculture. Grazing of domestic livestock severely limited the scope for regeneration. The forest was forced into smaller, fragmented pockets. For example, removing even scattered trees affects the hydrology of the land. Removing trees takes away important seed sources, leads to erosion and removes the source of leaf litter which itself plays a key role in converting dry or depleted soils to more favorable nutrient rich soil which is healthy for all plant growth.



*Above Photo - One of BLM's method of clearing the Public Lands*



*Above photo shows BLM/USFS idea of restoring a healthy ecosystem to our public lands.*

Various kinds of exploitation continues and especially in burned areas of forest where heavy grazing by domestic livestock occurs it is pastoral activity - fire and teeth - that are the most consistently destructive human activity.

Large-scale, long-term ecological destruction is totally transforming the Juniper forest while many other habitats have already been degraded or lost. All of our woodlands have been influenced by humans in some way and the ecological effects have been complex and varied; some of the key ones are outlined below:

When a habitat is fragmented, as is now the case, the species within the isolated patches become more vulnerable to inbreeding and disturbance such as fire and disease. Connectivity is essential for the robustness of an ecosystem.



*Above photo illustrates Juniper "restoration" on our public lands on the right side of the road - and natural Juniper forest on the left side of the road on public lands. As a past forestry major in college, I can verify that there is no doubt what so ever that the natural side shows health of our public lands and that the "restoration" side shows destruction for the sake of grazing of private/corporate livestock. Buckhorn/Twin Peaks Herd Management Area.*

Large, wild juniper forests are dynamic habitats which exhibit ecological processes such as succession, and are influenced by natural disturbances such as fire, storms and disease. These keep the overall ecosystem varied, with healthy habitats. Small, fragmented woodlands cannot withstand disturbance in the same way, and the ecosystem becomes less complex.

Not only has woodland cover been lost, but overgrazing in the remnants has also selected out the most palatable species, which in turn affects the specialist species that depend on them (i.e. sage grouse for example). Native woodland remnants are therefore less diverse than they would otherwise be.

A number of key wildlife species have been or on the brink of being lost, because of both habitat destruction and direct persecution. This has had a catastrophic effect, since all the animals and other life forms that dwell in the forest play a crucial role in keeping this diverse ecosystem healthy and robust. When key species are removed, the tapestry begins to unravel, affecting the health of the whole system.

In some countries and in some areas of the American West, the top predators – wolf, bear and mountain lion - were all hunted to extinction by humans. These animals each had an important, unique influence on the forest, keeping it rich and diverse. For example, predators keep herbivore numbers in check - a lack of natural predators is a major reason why our ecosystems are out of balance and unhealthy. Numerous other, less obvious creatures have also been lost or had their numbers drastically reduced.



***Above photo shows public land in the Ravendale WH&B Herd Management Areas of Lassen County –devastated by massive Juniper clear-cut removals. Although BLM and USFS and livestock ranchers will say otherwise, Juniper trees are a succession species that grow slowly and naturally in high desert ecosystems and are very beneficial for the land through their ability to stop erosion, provide shelter and forage for wild animals and transpire moisture throughout the year. However the livestock community wants them eradicated in order to provide more grassland for grazing and BLM is accommodating this on a large scale – paid for with our tax dollars and at the sacrifice of the health of our public land.***

Deforestation has also caused changes in the structure and fertility of the soil. Woodlands are more effective at retaining nutrients than overgrazed grassland, and so the loss of woodland cover can result in the soil becoming impoverished. Trees also intercept rainfall, retain moisture in the soil and send moisture back into the atmosphere via a process known as transpiration.

Centuries of ranching that involves rearing then removing animals from the land, means that high concentrations of nutrients have been lost when the meat was sold elsewhere (e.g. in towns and cities).

Dead wood, standing and fallen, is a vital part of a healthy forest, supporting a wide range of organisms. Forest clearance and intensive management of forests has resulted in a huge decrease of this crucial resource (slash piles are usually burned on site or sent to a bio-plant after logging or juniper removal).

Deforestation and domestic livestock overgrazing also result in the loss of the shrub layer and changes to the ground flora. When the structure becomes simplified, there are fewer niches for wildlife. Where areas may formerly have had rich floral communities, overgrazing and loss of the canopy can reduce the vegetation to non-native grasses. While wildfire is a natural part of any ecosystem and is a valuable part of the natural landscape mosaic, human interference has created an unnaturally high proportion of species-poor invasive grasses such as cheat grass, where juniper woodland would otherwise have thrived.

Humans have and continue to drastically denude and degrade the juniper forest. While no one can say for certain what the forest would be like had humans never interfered, we can safely say that it would be much more extensive and connected, and would contain a much richer array of wildlife than it does at present.

Who would have ever thought way back when, that at some time in the future, trees or shrubs native to their own historical territories & habitats would be treated like some invasive alien species brought over from another part of the world only to get loose and wreak havoc on the environment?

Our Juniper forests have been unfairly demonized as an invasive in its home territory for several years now because it encroaches into precious grassland which is used for the Domestic Cattle and Sheep industry. Much of this has not only been the result of climate change, but also the lousy over-grazing practices of Ranchers which have created a more favorable condition for its spread.



Mays Watershed: June 2005 prior to cutting. Note old growth juniper tree in the foreground.

**The above photo shows a vigorous and diverse forest in a healthy ecosystem.**

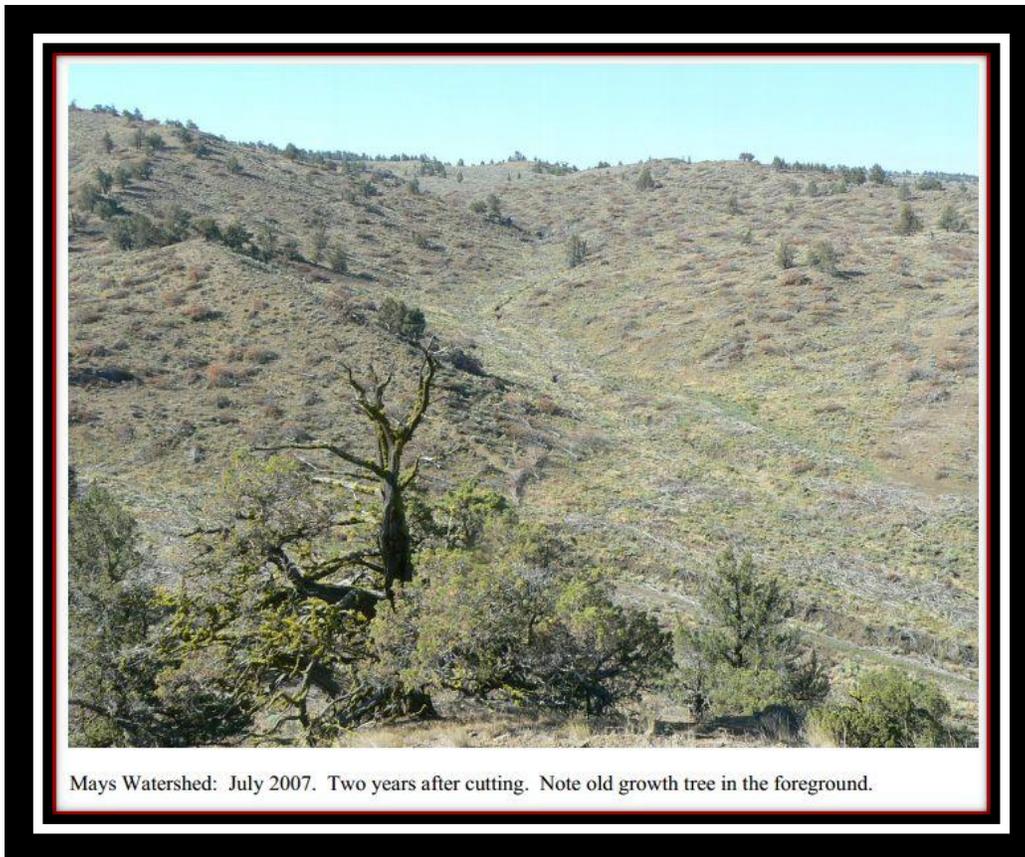
**The following photos even after two years, show that, the man-made forest destruction which causes much higher susceptibility to loss of soil nutrients, extensive erosion and invasion of non-native vegetation such as cheat grass, as well as a loss of the diverse bio-system required for a healthy animal habitat.**



Mays Watershed: June 2006. Cutting completed. Note old growth tree in the foreground.



Mays Watershed: July 2006. Following removal of bole wood in valley bottom. Note old growth juniper in fore ground.



So what is the future for the forest? Most forest remnants are still struggling to expand (known as forest succession), or even survive, largely because of overgrazing by excessive numbers of domestic livestock. There is a need for a wide range of forest uses, including the provision of timber and other forest products. To balance this, there is also the need for large wild areas free of intensive human management - 'self-willed land', to use a term coined by ecologist Aldo Leopold.

Before it is too late, we must restore or allow a large area of wild diverse forests to restore itself, which would include a wide range of habitats including the juniper forests. The aim is not to recreate a forest of the past; it is to allow the forests to evolve naturally within their ever-changing ecosystems. The goal is to restore the key elements in the forest to allow evolution and natural processes a freer reign. There is no doubt that the presence of wild forests nourishes the human spirit, as well as being essential to the health of the Earth.

*(the basis for these thoughts was inspired by and excerpts borrowed from the following)*

<http://www.treesforlife.org.uk/forest/humanimpacts/deforestation.html>

And

<http://creating-a-new-earth.blogspot.com/2014/04/pretzel-logic-denial-of-science-is.html>

## **Pesticides for Wild Horses - PZP and GONACON**

### QUESTION:

What is a “pesticide” versus a “vaccine”?

### ANSWER:

By definition, a pesticide is a product designed to **DESTROY** organisms deemed to be undesirable or noxious. *PZP* or brand name ZonaStat-H, EPA Reg. NO. 86833-1, was approved for use on wild burros and horses by the EPA. *ZonaStat-H* is a pesticide registered in January 2012 by The *Humane Society of the United States* and GonaCon (common name) was registered in 2013 by the US DOA. Both are clearly registered as “**PESTICIDES**”.

### *DEFINITION OF PESTICIDE:*

Chemical or biological substance designed to **KILL** or retard the growth of pests that damage or interfere with the growth of crops, shrubs, trees, timber and other vegetation **DESIRED BY HUMANS**. Practically all chemical pesticides, however, are poisons and pose long-term danger to the environment and humans through their persistence in nature and body tissue. Most of the pesticides are non-specific, and may kill life forms that are harmless or useful.

### DEFINITION OF VACCINE:

Any preparation used as a preventive inoculation to confer immunity against a specific **DISEASE** usually employing an innocuous form of the disease agent, as killed or weakened bacteria or viruses, to stimulate antibody production. Are our wild horses and burros a “disease”? Of course not! These pesticides are NOT vaccines for the prevention of a disease – they are pesticides used for destruction.

PZP and GonaCon are NOT vaccines ... they are both legally listed by the United States Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances as PESTICIDES. By incorrectly describing these pesticides as vaccines, BLM tries to make it appear to the public that they are helping to prevent a disease when they are actually supporting the eventual demise and extinction of our wild horses and burros. Stating that these chemical pesticides are vaccines is deceptive and fringes on fraud against the American people by BLM. It is clear that the BLM has had a wanton disregard for science, evidence and best-practice.

Look for yourself at the EPA Pesticide Fact Sheets (excerpts):

United States  
Environmental Protection Agency  
Office of Chemical Safety and Pollution Prevention  
(7505P)



## Pesticide Fact Sheet

<b>Name of Chemical:</b>	<b>Porcine Zona Pellucida (PZP)</b>
<b>Reason for Issuance:</b>	<b>New Chemical Nonfood Use</b>
<b>Date Issued:</b>	<b>January 2012</b>

### 1. Description of Chemical

Glycoprotein Complex:	ZP1 (80,000-90,000 KD), ZP2 (60,000-65,000 KD), ZP3 (55,000 KD), and ZP4 (20,000 – 25,000 KD)
Common Name:	Porcine Zona Pellucida (PZP)
EPA PC Code:	176603
Chemical Class:	Sterilant/Hormone
Registration Status:	New Chemical, nonfood use
Pesticide Type:	Mammalian Contraceptive
U.S. Technical Registrant:	Humane Society of the United States 2100 L St. NW Washington, DC 20037

### 2. Use Patterns and Formulations

Mode of Action:	PZP antigen is the glycoprotein layer that surrounds the oocyte and is weakly antigenic by itself. Therefore, PZP is emulsified with an adjuvant (mFCA for the primary vaccination and mFIA for booster
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United States  
Environmental Protection Agency  
Office of Prevention, Pesticides and Toxic Substances  
(7505P)



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# Pesticide Fact Sheet

**Name of Chemical:** Mammalian Gonadotropin  
Releasing Hormone (GnRH)  
**Reason for Issuance:** New Chemical  
Nonfood Use  
**Date Issued:** September 2009

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## 1. Description of Chemical

**Peptide Chain:** pyroGlu1 -His2-Trp3- Ser4 -Tyr5- Gly6 -Leu7-Arg8-  
Pro9- Gly10NH2 [GnRH]  
**Common Name:** Mammalian Gonadotropin Releasing Hormone (GnRH)  
**EPA PC Code:** 116800  
**Chemical Abstracts  
Service (CAS) Number:** 9034-40-6  
**Chemical Class:** Sterilant/Hormone  
**Registration Status:** New Chemical, nonfood use  
**Pesticide Type:** Mammalian Contraceptive  
**U.S. Producer:** U.S. Department of Agriculture, APHIS, Pocatello  
Supply Depot  
238 East Dillon Street  
Pocatello, ID 83201

The United States Environmental Protection Agency (EPA) clearly lists both PZP and GonaCon as a “pesticide”. These and other methods of contraception, including sterilization must be reviewed and discussed in the draft proposal and The National Environmental Policy Act (NEPA) requires that to ensure that statements and proposals reflect a careful consideration of the available science, and that areas of disagreement or uncertainty are flagged rather than being swept under the carpet. Thus, the public and the decision makers must resist the urgings of agencies that low-probability risks of very serious harms be dismissed from consideration or that the risk is evaluated only under the agency’s favored theoretical model without taking into account the possibility that other credible models might be correct. As required by NEPA to bring federal action in line with Congress' goals and to foster environmentally informed decision-making by federal agencies, NEPA “establishes ‘action-forcing’ procedures that require agencies to take a ‘hard look’ at environmental consequences.” *Metcalf v. Daley*, 214 F.3d 1135, 1141 (9th Cir.2000) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348, 109 S.Ct. 1835, 104 L.Ed.2d 351 (1989)).

### **Re-Establish Legal Wild Horse Area**

In addition to the 1971 Congressional Wild Horse and Burro Act (WH&BA) which states that the land where wild horses and burros were found at the time of the passing of the Act, is to be devoted principally but not exclusively to the wild horses’ and wild burros’ welfare in keeping with the multiple-use management concept of public lands, the law also provides that the BLM may designate and maintain specific areas on public lands as sanctuaries for their protection and preservation. By regulation, the BLM recognizes three types of management areas for wild horses – herd management areas (“HMAs”), herd areas, (“HAs”), and Wild Horse Territories (“WHT”). An HMA is an area “established for the maintenance of wild horse and burro herds.” 43 C.F.R. § 4710.3-1. An HA is any “geographic area identified as having been used by a [wild horse or burro] herd as its habitat in 1971” when the WH&BA was enacted. Regardless if the BLM previously decided to allow administration of a portion of the Pine Nut legal Herd Area to any entity, private or corporate, the 1971 unanimously passed Congressional Wild Horse and Burro Act gave the **principal usage** of that land to the Wild Horses and Burros. By law, wild horses must be allowed to remain and use the resources on their legal land and this includes all of the original **251,792 acres of the** Pine Nut Herd Area. This is still federal land designated to the protection of the wild horses and burros and the land belongs to the American people, regardless of any “agreements” regarding “control” that BLM made with anyone – the 1971

Congressional wild Horse and Burro Act prevails. It is the law. I require the re-establishment of wild horses on all their original Pine Nut legal Herd Area land be reviewed and considered in the upcoming Pine Nut evaluation.

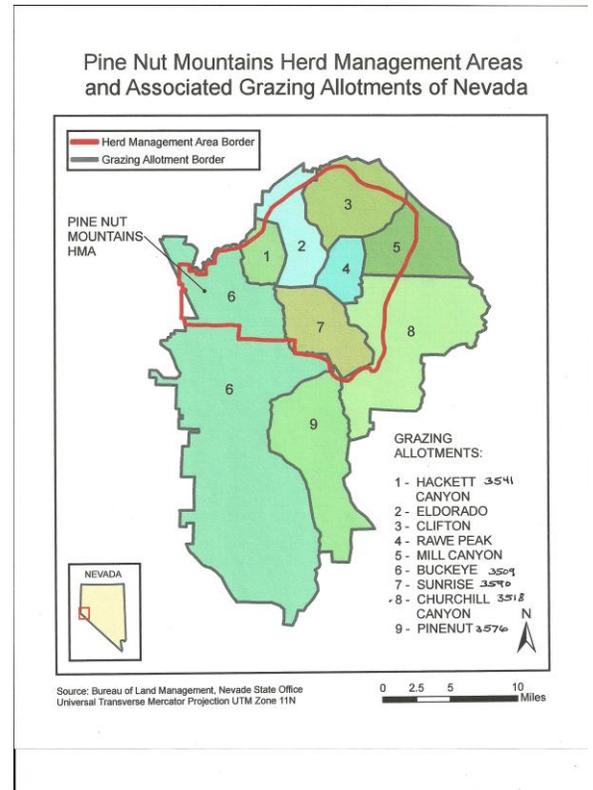
## **Genetic Failure**

The Pine Nut evaluation must provide evidence that after the proposed capture, treat release, removal or change in the AML, that there will always remain a genetically healthy population of no less than the Gus Cothran scientifically based suggested minimum number of 150 adult breeding age wild horses in the Pine Nut wild horse herd and that these horses are able to reasonably physically intermingle for genetic viability. This evidence must include all division fences within the HMAs including but not limited to the grazing boundary fences. The BLM will be unable to provide this data because:

- 1) There will not be a healthy breeding intermingling population (150 adult breeding age wild horses) if the AML is reduced or if further capture/removal/contraception/sterilization plans proceed.
- 2) Regardless of the total HMA AML population, because of the extensive livestock fences won the Pine Nut wild horse legal land the legally designated wild horse lands are nothing more than fenced in pastures that even “today” have less than 100 adult breeding age wild horses – and certainly will lose even further any chance for a free-roaming genetically viable population if the interior livestock fences are not removed and the wild horses are allowed their legal free-roaming behavior.
- 3) It doesn’t matter if there is a herd size of a thousand wild horses if they are divided into small pastures where they are unable to intermingle for genetic variability – they will be genetically doomed within a few generations. This is also commonly known as “managing for extinction”.

As shown in the map on the right, the Pine Nut HMA is fragmented by numerous livestock grazing allotments. Fragmenting the HMA into fenced pastures would cause an inability for the Pine Nut wild horses to intermingle for genetic viability as well as limiting their legal resources – both forage and water.

Fences erected to rotate cattle and sheep from one "pasture" to another keep wild horse herds away from healthy inter-breeding and can quickly cause a genetic bottle-neck and eventual extinction. A variety of human land uses, including livestock fences, fragment intact natural landscapes into smaller patches of habitat. These patches become isolated "islands," and depending on the type and degree of fragmentation, this process can have a very detrimental effect on a species.



The size of the fragment will influence the ability of these species to persist in the fragment. Small fragments of habitat can only support small populations of plants and animals and small populations are more vulnerable to extinction. Minor fluctuations in climate, resources, or other factors that would be unremarkable and quickly corrected in large populations can be catastrophic in small, isolated populations. Thus fragmentation of habitat is an important cause of species extinction.

I therefore require that in the upcoming evaluation, the alternative to remove all interior livestock fencing be reviewed and seriously considered. The agency [BLM] may not simply remain studiously ignorant of material scientific evidence. The NEPA law requires that all relevant scientific information be provided to the American public and that that information be taken a "hard look" at by the decision makers. The National Environmental Policy Act (NEPA) requires that to ensure that any proposals or statements reflect a careful consideration of the available science, and that areas of disagreement or uncertainty are flagged rather than being swept under the carpet.

## **Genetically Viable Pine Nut Wild Horse Population**

Recent court decisions have described the obligations placed on federal agencies such as the BLM. Specifically, the agency is required under NEPA to take a "hard look" at "every significant aspect of the environmental impact of a proposed action" and inform the public that it indeed has taken environmental considerations into account before taking action. Since the agency is required to take a hard look at science, I provide you here with information from Dr. Gus Cothran, the foremost equine geneticist in the United States and require that this be included in the administrative record.

### **Genetic Variation in Horse Populations**

*Elimination of our Wild Horses and Burros* <http://www.saveourwildhorse.com/extinction.htm>

\*\*BLM Resource Notes No. 27\* NO. 27 DATE 07/20/00  
By: E. Gus Cothran, PhD., Department of Veterinary Science, University of Kentucky/  
The fifth in a series of 13, Session 2

#### **\*Background\***

*One of the major focuses of conservation biology and genetic management of small populations is the preservation of genetic variability. This topic is of particular relevance to the Wild Horse and Burro Program because 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. Because a loss of genetic variability can lead to a reduction in fertility or viability of individuals in a population, it is critical that genetic considerations be included in management plans for wild equid populations. An important aspect of utilizing genetic information in management planning is an understanding of what is meant by the term genetic variation and how genetic variability can be measured in horse and burro populations.*

#### **\*Discussion\***

*Genetic variation is the amount of inheritable diversity in a population or an individual. It can be observed as morphological variation in size, conformation or color, but we are*

*actually concerned with variability of genes, whether we can observe an effect of this variation or not. There are several different measures of genetic variation but two of the basic ways it is expressed are heterozygosity, the proportion of genes variable within an individual, and some type of estimate of allelic diversity, such as the total number of genetic types observed within the population. All of these different measures of variation are calculated from data collected from sampling a small set of genetic marker systems in a sample of individuals from a population. Traditionally, the genetic marker systems used to measure genetic variation in horses are a set of blood group and biochemical genetic marker systems that have been developed for parentage verification analysis of domestic horses. The blood group systems are tested by analysis of variation of antigens on the surface of red blood cells using specific antibodies and standard serological techniques. The biochemical genetic systems are serum or red cell proteins or enzymes detected by electrophoretic methods (relating to a method of separating large molecules such as DNA fragments from a mixture of similar molecules by passing an electric current through a medium containing the mixture - separation depends on each molecules electrical charge and size). Blood group testing requires a fresh blood sample with intact red blood cells. Biochemical genetic testing can utilize frozen blood or other tissues such as a muscle biopsy. At the University of Kentucky, we routinely test seven blood group and ten biochemical genetic systems so that genetic variability measures are based upon data from seventeen genetic loci.*

*Analysis of genetic variation in populations also is done by use of DNA genetic marker systems. In horses, these DNA systems are primarily a type of genetic marker called microsatellites. Microsatellites are highly variable sections of DNA that can be tested by use of PCR (polymerase chain reaction - a method for amplifying a DNA base sequence) and electrophoretic techniques. Direct testing of DNA can utilize almost any bodily product including hair (if the hair root bulb is present) or even feces. The estimates of genetic variation we can get from these techniques perhaps do not accurately correspond to total genomic variation, although that is not certain. However, with a sufficient comparative database, these measures can be used to determine the variation within a population as it compares to other horse populations and can be used to make inferences about the genetic health of the population at the time of sampling.*

**\*Conclusion\***

*Genetic analysis of wild horse and burro populations can provide valuable information about current levels of genetic variation. This information can then be used to make predictions about how particular management strategies will influence genetic variation in the herd. Thus, genetic analysis can be a useful tool in the overall management of wild horse and burro populations on public lands.*

**\*Contact**

*\*E. Gus Cothran, PhD. Veterinary Science, Equine Blood Typing and Research Laboratory, 101 Dimock Animal Pathology Building University of Kentucky, Lexington, KY 40546-0076 phone 606-257-3022 fax 606-257-4119 e-mail gcothran@pop.uky.edu.*

**DATE 08/01/00 BLM Resource Notes No. 35**

*Summary Recommendations - BLM Wild Horse and Burro Population Viability Forum, April 21, 1999 /by Linda Coates-Markle, Montana/Dakotas Wild Horse and Burro Specialist, Bureau of Land Management, Montana State Office/ \*/The final Note in a series of 13, Session 4/\**

**\*Recommendation #1:\***

*BLM should carefully consider its mandate (The Wild Free-Roaming Horse and Burro Act) with respect to long-term genetic viability of populations of wild horses and burros.*

**\*Existing Policy:**

*\* BLM regulations and policy state that wild horses and burros shall be managed as viable, self-sustaining populations of healthy animals in balance with other multiple uses and the productive capacity of their habitat (CFR 4700.0-6).*

**\*Definition:**

*\*Self-sustaining refers to the process whereby established populations are able to persist and successfully produce viable offspring which shall, in turn, produce viable offspring, and so on over the long term. The absolute size which a population must attain to achieve a self-sustaining condition varies based on the demographic and sociological features of the herd*

*(and adjoining herds), and these aspects should be evaluated on a case by case basis. In many cases it is not necessary that populations be isolated genetic units, but both naturally-occurring and management-induced ingress and egress activity can be considered, in order to maintain sufficient genetic diversity within these populations.*

**\*Discussion:**

*\*Reproductive capacity is, to a large degree, dictated by the genetic fitness of a population. Generally speaking, the higher the level of genetic diversity, within the herd, the greater its long-term reproductive capacity. Inbreeding, random matings (genetic drift), and/or environmental catastrophes can all lead to the loss of genetic diversity within the population. In most herds, though, genetic resources will tend to be lost slowly over periods of many generations (~10 years/generation), and there is little imminent risk of inbreeding or population extinction. Potential negative consequences of reduced diversity, however, may include reduced foal production and survival, as well as reduced adult fitness and noted physical deformities. Smaller, isolated populations (<200 total census size) are particularly vulnerable when the number of animals participating in breeding drops below a minimum needed level. This minimum level can be calculated and is different for each population (see subsequent recommendations).*

*BLM regulations and policy state that wild horses and burros shall be managed as viable, self-sustaining populations of healthy animals in balance with other multiple uses and the productive capacity of their habitat (CFR 4700.0-6). By definition this requires BLM to manage to allow established populations to successfully produce viable offspring which shall, in turn, produce viable offspring, and so on over the long term. This suggests that management monitor levels of genetic diversity within the population in order to mitigate the effects of genetic drift and possible inbreeding and population-associated problems due to loss of diversity.*

*\*BLM regulations and policy state that wild horses and burros shall be managed as viable, self-sustaining populations of healthy animals in balance with other multiple uses and the productive capacity of their habitat (CFR 4700.0-6). By definition this requires BLM to manage to allow established populations to successfully produce viable offspring which shall, in turn, produce viable offspring, and so on over the long term.*

## **Excess**

The agency's determination of "excess" is arbitrary. The wild horses here are not overpopulated by any unprejudiced view. The wild horses must be considered on their land first and foremost; above all; principally. It is the law.

The BLM's land use plans make clear that contrary to WFRHBA, it does not decide to remove wild horses and burros only to maintain a "*thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation*". Nor are the protected wild horse ranges "*devoted principally*" to the use of wild horses and burros. Instead, the BLM clearly embraces the multiple use concept for all lands designated for wild horses and burros and further, to prioritize the private/corporate domestic livestock permittee. Indeed, the plan seems to be to eliminate or zero out the wild horses and burros in favor of increased development and recreational use, gas/oil/geothermal/mining exploitation and especially exorbitant private/corporate domestic livestock use.

Failure to provide scientific monitoring data and reports to verify previous wild horse captures and removals SOLEY RESOLVED any thriving ecological balance problems in the Pine Nut Wild Horse Legal lands. The public has a right to know and a responsibility to review any pertinent data that supports or does not support statements by the BLM regarding hypothetical "excess" populations of wild horses on their legally designated lands.

If there is research and data that the heavy forage utilization or land destruction is SOLEY caused by the wild horses and not domestic livestock or other uses, then those reports must be provided to the public. Just because it is stated by BLM, does not make it a fact and research and reports and facts are what is needed for the public and the BLM to make a responsible decision for the well-being of both the land and for the wild horses. The NAS concluded that a state of over-population does not exist until accurate and unbiased research is done. Ignoring relevant scientific data by the BLM constitutes a violation of the NEPA policy.

## **Appropriate Management Level (AML)**

As the district court explained in *Dahl v. Clark*, the test as to appropriate wild horse and burro population levels is whether such levels will achieve and maintain a thriving, ecological balance on the public lands. Nowhere in the law or regulations is the BLM required to maintain any specific numbers of animals or to maintain populations in the numbers of animals existing at any particular time. The only law that requires the BLM to maintain populations is the 1971 Congressional law. The law must be followed and the law states, “that wild free-roaming wild horses [and burros] are to be considered in the area where presently found, as an integral part of the natural ecosystem of the public lands”.

Thus, an AML established purely for BLM administrative reasons because it was the level of the wild horse and/or burro use at a particular point in time cannot be justified under statute. Where range studies or other quantifiable data have identified a need to begin monitoring studies with a specific number of wild horse [or burros] and those studies demonstrate that ONLY by reducing the number of wild horses or burros will a specific resource problem be corrected, the specified number of animals may be used.

Accordingly, the court [IBLA 89-33] concluded that section 3(b) of the Act does not authorize the removal of wild horses [or burros] in order to achieve an AML which has been established for administrative reasons, rather than in terms of the optimum number which results in a thriving natural ecological balance and avoids deterioration of the range. The AML’s were originally established (and this admitted to by BLM) for administrative convenience, rather than based on a determination of the optimum number of wild horses and/or burros that would maintain the range in a thriving natural ecological balance.

Additionally, the Secretary's 1981 letter indicated that levels of wild horse [and burro] use were established by BLM only for administrative convenience, i.e. the absence of adequate "vegetation production data" to establish levels other than at current numbers, presumably because prior "one-point-in-time" vegetation inventory had been discredited. Although BLM is required to manage the public land, establishing appropriate levels [AML] of wild horse [and/or burro] use without adequate and current information to make the decision is illegal.

Evidence must be provided to the public that BLM has engaged in current range assessments adequate to allow BLM to conclude that removing any number of Wild Horses or adjusting the AML downwards from this HMA would achieve that optimum number and return and maintain the range to its natural ecological balance.

The current Appropriate Management Level (AML) must be reviewed, considered and ultimately raised to accommodate the current and historic population of wild horses that lived on their legally authorized land – both Herd Areas and Herd Management Areas.

The agency [BLM] may not simply remain studiously ignorant of material scientific evidence. The NEPA law requires that all relevant scientific information be provided to the American public and that that information be taken a "hard look" at by the decision makers. The National Environmental Policy Act (NEPA) requires that to ensure that environmental assessment statements reflect a careful consideration of the available science, and that areas of disagreement or uncertainty are flagged rather than being swept under the carpet.

The goal of implementing procedures for NEPA is to ensure that the environmental impacts of any proposed decisions are **fully considered**. Recent court decisions have described the obligations placed on federal agencies such as the BLM. Specifically, the agency is required under NEPA to take a "hard look" at "every significant aspect of the environmental impact of a proposed action" and inform the public that it indeed has taken environmental considerations into account before taking action.

It appears that there are one or more pieces of this puzzle missing. Is it the fencing and cross-fencing on the HMA that are in place for the sake of the domestic livestock grazing allotment boundaries? I know for a fact that on some HMAs regardless of the total AML, the livestock fencing keeps the herd fragmented and therefore regardless if the total AML is above the 150-200 population level suggested by Dr. Cothran ... the actual intermingling groups are far below that ... even sometimes down to a single digit population.

With this being said, it becomes obvious that the HMA is not being treated like a herd management area – it is being treated as “pastures”, including fencing that divides not only the livestock but the wild horses from grazing on and using their legally designated land – per the 1971 law. I have personally seen this and have documented proof that this is the preferred method for wild horse management by the BLM agency. This cuts off the wild horses from their legal land, forage, habitat, water and genetic requirements and not only often causes physical starvation and dehydration that would not normally happen if they were free-roaming, as the 1971 law requires, but it causes severed genetic bottle-necks within these sub herds, again fortifying the BLM’s insistence to not follow the law that says the wild horses are to be protected as free-roaming. I certainly hope that someday soon the tax-paying public who own the land and the wild horses can see through the BLM’s management for extinction methods. If not, and if the BLM is allowed to continue this mismanagement ... our future generations will never believe that there really were wild horses and those future generations will hang their heads in shame and despair to know that their forefathers allowed the extinction of America’s wild horses.

“Small” (fewer than 150 breeding individuals) populations of any species eventually cause a genetic bottleneck and eventual extinction. The BLM is fast-tracking wild horses toward extinction and I will allow this scientific research article to explain in more detail and I require this research article be provided to the public and become part of the administrative record for this Pine Nut evaluation.

~

## Loss of Genetic Diversity in Wild Populations

Shawn Larson, Seattle Aquarium United States

<http://cdn.intechopen.com/pdfs-wm/29263.pdf>

“Populations that experience bottlenecks are thought to lose genetic diversity through genetic drift and inbreeding (Charlesworth & Charlesworth, 1999; Crnokrak & Roff, 1999; Hedrick & Kalinowski, 2000; Lacy, 1997; Lynch, 1996; Ralls et al., 1988). Small population size may lead to inbreeding where related individuals produce offspring (Eldridge et al., 1999; Lynch, 1996; Slate et al., 2000). Inbreeding may lead to the buildup of deleterious recessive genes, termed inbreeding depression, that may cause decreased fecundity, increased mortality, slowed growth, developmental defects, increased susceptibility to disease, decreased ability to withstand stress, and decreased ability to compete (Lacy, 1997).

Genetic studies of small populations that regularly contain fewer than 100 breeding individuals, or effective population size (NE), suggest that these populations are extremely vulnerable to the loss of genetic variation (Lacy, 1997; Lynch, 1996). Low diversity combined with inbreeding depression increase a small population’s vulnerability to extinction from stochastic events (Lacy, 1997; Lynch, 1996). Population sizes of at least 1000 are suggested to protect against the fixation of deleterious genes”.

~

Nowhere in the law or regulations is the BLM required to maintain any specific numbers of animals or to maintain populations in the numbers of animals existing at any particular time. The only law that requires the BLM to maintain populations is the 1971 Congressional law. The law must be followed and the law states, “that wild free-roaming wild horses and burros are to be considered in the area where presently found [in 1971], as an integral part of the natural ecosystem of the public lands”. Thus, an AML established purely for BLM administrative reasons because it was the level of the wild horse and burro use at a particular point in time or imagined to be an advantageous population for BLM cannot be justified under statute.

Therefore, I require the BLM to review and consider and evaluate and increase the AML for wild horses on the Pine Nut Wild Horse Herd Area lands where they are legally *DESIGNATED*. Definition of the word “designated” is to “set aside for” or “assign” or “authorize”. The Wild

Horse and Burro lands and resources are set aside for, and assigned and authorized for, the use of wild horses and burros – by the Congressional Law of the United States of America.

## **BLM Mission**

I call on you to follow the 1971 Wild Horse and Burro Act which calls for the “least feasible” management—not the most potentially destructive. The BLM’s stated mission is to “Sustain the health, diversity and productivity of the public lands for the use and enjoyment of the present and future generations”. In order for BLM to abide by the law of our United States, it must adopt management strategies which will lead to the minimum feasible management as mandated by the 1971 Wild Horse and Burro Act. It is the law.

I fully expect that the BLM will realize the importance and will seriously review and consider the level of detail described above, which is necessary for informed evaluation by the American public and the decision makers and as a “hard look” per the NEPA law. I further expect that the BLM will provide a full accounting of how many members of the public submit comments on this EA proposal and what their positions are, as the agency is legally required to do under the National Environmental Policy Act (NEPA). While documentation is not the end of the NEPA process, it is important that a reasonably good job of communicating the purpose and need of the project; the values used to develop and compare alternatives; the results of accurate analysis for direct, indirect impacts, and cumulative impacts; and mitigation as required by relevant regulation. It must provide accurate scientific evidence to the public and participating agencies which proves a commitment to, and satisfaction of the NEPA requirements. Environmental documentation must communicate clearly and accurately the results of project analysis and the subsequent decisions.

At its most basic level, NEPA requires that the decision-makers, as well as the public, be fully informed, i.e. "that environmental information is available to public officials and citizens before decisions are made and before action is taken." 40 C.F.R. § 1500.1(b). NEPA ensures that the agency "will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger [public] audience." *Robertson v. Methow Valley Citizens Council*.

This must be available and analyzed in the proposed evaluation plan before a Record of Decision or Finding of No Significant Impact can be completed or published. Our public lands must be managed for all American citizens, not just local ranchers and hunters and miners and energy exploiters and other multiple-use users. It is time for BLM to stop “business as usual” steam-rolling the American public and begin to manage our public lands and public resources for all Americans. In order for BLM to abide by the law of our United States, it must adopt wild horse and burro management strategies which will lead to the minimum feasible management as mandated by the 1971 Wild Horse and Burro Act. It is the law.

These evaluations as well as land use plans are full of words but have little substance when it comes to stating why wild horses must be removed from their rightful land. It is apparent that the BLM prepares an EA or EIS or RMP or other NEPA document depending on its goal. The agency states that range is deteriorating and without water when the agency wants to remove wild horses and burros and then turns right around and states it is healthy when BLM wants to renew grazing permits. This historical and ongoing dishonesty is not only illegal under the law but it becomes obvious that the BLM has had a wanton disregard for science, evidence and best-practice.

WFRHBA authorizes only limited interference with wild horses and burros in herd areas where they were living in 1971, but nothing about removing wild horses and burros from herd areas where they lived in 1971 to allow multiple use such as cattle grazing, recreation for off road vehicles, mining or development.

## **Conclusion**

The BLM and Department of the Interior have only themselves to blame for the extremely poor confidence and heightened skepticism from yesterday’s and today’s public. It is clear that the BLM has had a wanton disregard for science, evidence and best-practice. What level of self-deception, ignorance, and incompetence must have existed for the BLM to believe for so long it was doing a good job? What sort of unprofessional ethic must exist for a tax-payer funded government agency to knowingly use dubious data to meet public interest and defend its policy in the face of public concerns? This public skepticism and dislike and distrust can here and now

be vastly dispersed if the BLM's Carson City District will seriously consider the Wild Horse and Burro Act and the public's concern for its public lands and beloved wild horses and burros.

In summary, although I oppose any and all BLM interference with the wild horses and burros on the Public Lands without absolute verifiable "material scientific evidence" that there indeed is an excess of wild horses on the legally designated Wild Horse and Burro public land, including their legal original herd area lands, and that not any other resources are causing any water or forage destruction causing any capture/removal/pesticide application proposal and that the decisions are made on valid independent scientific research and not political maneuvering.

The public is invited and has the responsibility to review and make recommendations before any environmental decisions including capture/removal/contraception or any other relevant decision having substantial effect on the wild horses and burros that belong to the citizens of the United States is made by BLM.

It is my request as well as the responsibility of the BLM to supply the public with adequate and accurate information, independent scientific research and realistic options. This is the main purpose of this letter and without the BLM's willingness to supply complete, accurate and non-politically driven information, any proposed proposal or decision will be illegal.

The federal government does not own lands nor do they own the wild horses and burros in the West. These are not "state lands" and not "federal lands" and not even "government lands". They are public lands. The American people own the public lands in the West and they are administered on our behalf by the national government under laws and regulations. This land and the wild horses and burros belong to all citizens of the United States, not the federal government. I appreciate the opportunity to participate in the planning decisions on our public lands and wish you to leave you with this quote by Ralph Waldo Emerson, "What you do speaks so loud that I cannot hear what you say". The BLM is required to follow the law and listen to the American people.

As an American citizen, environmental researcher and a life-long visitor to the state of Nevada, I appreciate the opportunity to provide input on the proposed Pine Nut Herd Management Area Draft Evaluation. The federal government does not own land in the West. These are not "state lands" and not "federal lands" and not even "government lands". They are public lands. The

American people own the public lands in the West and they are administered on our behalf by the national government under laws and regulations. This land belongs to all citizens of the United States, not the federal government.

The 1971 Congressional Wild Free-Roaming Horse and Burro Act, (Public Law 92-195), declares that the land where wild horses and burros were found at the time of the passing of the Act, is to be devoted principally but not exclusively to the wild horses' and wild burros' welfare in keeping with the multiple-use management concept of public lands. Definition of principally: First, highest, foremost in importance, rank, worth or degree, chief, mainly, largely, chiefly, especially, particularly, mostly, primarily, above all, predominantly, in the main, for the most part, first and foremost. It is the law of the United States of America and any policy or regulation or memorandum of understanding or environmental assessment or Record of Decision or Finding of No Significance that BLM or other governmental agency writes or proposes or agrees to or takes action on that does not come under the umbrella of the law is therefore illegal.

The impact of ignoring or bypassing the edict of the law destroys the trust and the integrity of the United States Government to abide by a law that was passed by Congress and can only be abolished by an act of Congress. The laws of the United States are what our great country is based on and to ignore these laws exhibits an act bordering on treason to the American people.

The Court concluded [IBLA 89-33], to wit:

**It would be anomalous to infer that by authorizing the custodian of the wild free roaming horses and burros to "manage" them, Congress intended to permit the animals' custodian to subvert the primary policy of the statute by capturing and removing from the wild the very animals that Congress sought to protect *from* being captured and removed from the wild.**

Sincerely,

██████████  
████████████████████  
██

Receipt and Response requested



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**Fwd: Email 1 of 2: AWHPC Pine Nut Mountains HMA Draft Evaluation**

1 message

Fri, Oct 23, 2015 at 12:38 AM

To: pinenuthorses@blm.gov

October 22, 2015

John Axtell, Wild Horse Specialist  
BLM Carson District Office  
5665 Morgan Mill Road  
Carson City, NV 89701

Via email: [pinenuthorses@blm.gov](mailto:pinenuthorses@blm.gov)

**Re: Pine Nut Mountains Herd Management Area Draft Evaluation**

Dear Mr. Axtell:

These comments for the *Pine Nut Mountains Herd Management Area DE* are submitted on behalf of the American Wild Horse Preservation Campaign (AWHPC).

AWHPC is dedicated to preserving the American wild horse in viable free-roaming herds for generations to come, as part of our national heritage. Our grassroots efforts are supported by a coalition of over 60 historic preservation, conservation, horse advocacy and animal welfare organizations.

Our members enjoy observing, photographing, and researching wild horses in the Pine Nut Mountains Herd Management Area (HMA) on a regular and recurring basis and are actively engaged in participating in the National Environmental Policy Act (NEPA) process for this project. We appreciate the extension of the comment deadline for this project from September 22, 2015 to October 22, 2015 as this provided AWHPC and our local partners a better opportunity to review the Draft DE (DE) and provide comments.

**I. Overview**

After careful review of the DE, it is clear the BLM plans to recommend removal of wild horses from the HMA to the lowest range of the Appropriate Management Level (AML). [1] It appears that wild horses are unreasonably targeted as the cause of declining rangeland health and sage grouse populations while the impacts of other, more likely causes of rangeland health decline, such as a long history of cattle grazing, invasive cheatgrass, and climate change, are minimized.

The Pine Nut Mountain HMA encompasses more than 90,000 acres of public lands and 14,692 acres of private lands and has an allowable population of just 119-179 animals, which was established in 1995. [2] Before the BLM permanently removes wild horses, the BLM should consider increasing the AML for this HMA and analyzing alternatives to permanent removal.

AWHPC supports the Catch-Treat-Release (CTR) method of humanely managing – or suppressing population growth of – wild horses through the application of the PZP fertility control vaccine. We do not support the removal of wild horses from the HMA and encourage the Bureau of Land Management (BLM) to consider alternatives to removal such as application of PZP fertility control for wild horses, including the use of darting or water/bait trapping, and to apply the PZP fertility control vaccine to a sufficient number of mares in the HMA to ensure effective population growth suppression. In addition, we asked the BLM to outline future plans to continue the PZP fertility control program in order to continue the population growth suppression.

**II. The DE Is Biased and Fails to Adequately Analyze Actions to Achieve TNEB**

The stated purpose of the DE is “to assess the factors affecting the Bureau of Land Management’s (BLM) ability to achieve and maintain a thriving natural ecological balance [TNEB] and multiple-use relationship on the public lands and protect the range from the deterioration associated with overpopulation of wild horses (*Equus callabus*).” This statement shows that the BLM is not addressing this DE without bias. Indeed, the agency is beginning from a position that there is a range “deterioration associated with overpopulation of wild horses.” Merely because wild horses are at levels above the arbitrarily-designated “Allowable Management Level” (AML) does not automatically indicate that (a) there is range deterioration or that (b) horses are the contributing factor for any such range deterioration. This point is important because through the legally-required NEPA process of gathering information for the agency to consider, before taking an agency action, it is imperative that the agency does not enter into said consideration or analysis with an intentional outcome but rather allow the data and science to gear the agency to the most appropriate action.

Additionally, **AWHPC strongly urges the BLM to revise the draft DE to include the entire federally-designated Pine Nut Mountains Herd Area for analysis.** There is strong local and national public support for the BLM to re-evaluate the zeroed-out portion of the HA to be reincorporated in the HMA. Since the BLM eliminated the majority of the original Herd Area for wild horse usage in the 1980’s, there has been significant public support to reinstate management of wild horses in this area. In fact, the very reasons set forth by the BLM for the zeroing-out of this area – the local tribes – no longer express opposition to wild horses in this area.

It is our understanding that the BLM and U.S. Fish and Wildlife Service (FWS) prefer to see reduced number of wild horses in the Pine Nut Mountains HMA in order to protect the greater sage-grouse found in the Pine Nut Mountains. However, wild horses have lived in the Pine Nut Mountains for nearly 100 years, if not longer and sage grouse populations have been on the decline for the last few decades. Therefore, it is

imperative that the BLM consider and analyze what actions have increased in the Pine Nut Mountains in recent years that are likely prime contributors to the reduce sage grouse population. Indeed, the local human population has greatly increased in the last 30 years in the area – leading to dramatic increase in human usage of the Pine Nut Mountains – both ATV and UHV use has increased exponentially in recent times. Additionally, over the past 30 years fencing throughout the Pine Nut Mountains allotments has increased – and while new fencing has been install often time old fencing has been left on the range. It is well documented that fencing negatively impact sage grouse.

**III. Wild Horse Population**

The BLM notes that in 1975 an estimated 297 horses were found in the Herd Area. It is well documented that BLM's census accuracy has been lacking and only in the last few years has the agency acknowledged the need for a more scientific approach to counting horses. Given that the BLM routinely states that the agency *undercounts* horses – it is safe to surmise that there were more than 300 horses in the Pine Nut Mountains prior to 1975. Yet, the BLM arbitrarily established the AML of 119-179 horses and proceeded to remove hundreds (if not thousands) of horses over the past 37 years (since 1978 when the BLM began to remove horses from the area). Today, the BLM estimates based on a 2014 census, that there are approximately 336 horses in and outside of the HMA – approximately the same number estimated in 1975. It must be noted the **majority** of the estimated 148 horses “outside of the HMA” are either in the HA or were found on the HMA and HA border – natural horse habitats that should have been incorporated in the HMA. In fact, these horses likely travel between the HMA/HA borders without knowing, of course, of the artificial line the BLM has created. The BLM's failure to consider the natural wild horse movement – both daily and seasonal movement – when establishing the boundaries of HMAs/HAs should be considered analyzed and corrected in the Evaluation.

**IV. Alternatives to Removal of Wild Horses from the HMA Must Be Considered**

The BLM must consider and analyze alternative methods for managing the wild horses in this HMA, including the use of bait/water trapping and, as mentioned above, the use of darts to administer PZP fertility control.

The use of helicopters for any herd management should be considered only as a last resort. Helicopter roundups are known to inflict stress, trauma, injury and death on wild horses and collateral damage to sensitive sagebrush, grasslands, and riparian habitat areas and disruption to other wildlife species. The use of bait/water trapping will minimize stress to the horses, eliminate collateral environmental damage (as horses will not be stampeded through sensitive desert habitat) and maintain herd social structures.

The BLM must not simply state that the use of bait or water trapping is not cost-effective or practicable due to water sources or other factors. Rather the BLM must analyze how bait/water trapping *could* be implemented – how water sources could be controlled allowing the BLM to turn off water during water/bait trapping efforts. In addition, there are numerous pastures throughout the HMAs, which are practicable for trapping operations. The use of water/bait trapping can be used to greatly reduce the stress of capture/treat/release (CTR) operations, maintains the social structure of bands, and thereby reduces stress to the animals.

**V. Impacts from Cattle are Not Adequately Analyzed**

The DE indicates there are nine grazing allotments that overlap with this HMA, livestock are permitted on just four of these allotments, and only one allotment was actively grazed during the 2015 grazing year.[3] Churchill Canyon was the only permitted and grazed allotment in 2015 while Churchill Canyon and Sunrise Pass allotments were grazed in 2013 and 2014.[4] There is no information in the DE regarding trespass cattle and “[a]ctual use for 2015 has not been compiled.”

Additionally, because the majority of the allotments have not been legally grazed by cattle since 2006, it appears the BLM has dismissed or minimized the previous long-term impacts cattle grazing has on rangeland health while at the same time targeting wild horses and the cause of deteriorating rangeland health. For example, cheatgrass, “found throughout the HMA,” is known to be spread by cattle grazing and has long-term impacts on rangeland health that have not been disclosed.[5] Instead, the DE states that “[w]ild horses are present in all nine grazing allotments within the HMA” while only one grazing allotment was active in 2015.[6] The presence of sheep is also minimized despite the fact that sheep trailing has occurred in the Eldorado Canyon, Hackett Canyon, and Clifton allotments.[7]

We have compiled into a single table the information from the DE regarding rangeland health, riparian function, vegetation trend, and soil stability, along with grazing allotment information, AUMs for cattle and horses, and actual use for 2013-2014. As you can see, there is a significant amount of important information missing from the table (highlighted cells). This information should be collected and disclosed to the public. Some of the riparian functioning information is as much as 15 years old. Additionally, you can also see there does not appear to be a clear or direct connection between rangeland health and the presence of wild horses.

For at least one metric (biotic integrity), the departure from reference conditions is recognized as “primarily due to the shifts in species composition (fewer native perennials and more annual species) and reduced species richness for perennial plants.”[8] As indicated throughout the DE, plant species diversity is impacted by drought as well as the long-term impacts of the legacy of cattle grazing and associated spread of noxious, invasive plants such as cheatgrass.

The downward trend for rangeland health appears to have been analyzed since 1975. See Appendix A, at pages 37-38 of the DE. Given that cattle have been grazing allotments within this HMA up until 2006, and were grazing at least two allotments in 2014 and one in 2015, the BLM must disclose in this DE how rangeland health deterioration was specifically attributed to current wild horse populations.

Allotment	2014 AUM (livestock/horse)	Last Grazed (livestock)	2013- 2014 Actual Use (livestock/ horse)	Range Health			Vegetation Trend	Riparian health (number of riparian areas and functioning level)
				Soil Site Stability	Hydrologic Function	Biotic Integrity		
Buckeye	0/60	Prior to	0/5	N/A	N/A	N/A	Up/Down	N/A

Clifton	0/684	2006 Prior to 2006	0/52	NS/SM	NS/SM/M	SM/M/ME	Static-Down	1 PFC 2 FAR 11 NF
Churchill	200/0	2015	200/0	NS	NS	SM	Down	1 NF
Eldorado Canyon	0/444	Prior to 2006	0/35	NS/SM	NS/M	NS/SM/ME	Down	1 FAR (due to roads)
Hackett Canyon	0/0	Prior to 2006	0/0	SM	SM	M	Static-Down	N/A
Mill Canyon	0/564	Prior to 2006	0/46	NS/SM/M	SM/M	SM/M/ME	Down	1 NF (lack of water) 1 FAR
Rawe Peak	0/72	Prior to 2006	0/6	NS	NS	SM	Down	N/A (dry, last assessed 1995)
Sand Canyon	0/0	Prior to 2006	0/0	N/A	N/A	N/A	Static	N/A
Sunrise Pass	106/0	2014	124/0	N/A	N/A	N/A	Static-Down	2 PFC 1 FAR (prior cattle) 1 NF (pinyon- juniper encroachment)

**N/A = Not Available**

**NS = None to Slight departures from reference conditions**

**SM = Slight to Moderate departures from reference conditions**

**M = Moderate departures from reference conditions**

**ME = Moderate to Extreme departures from reference conditions**

**PFC = Properly Functioning Condition**

**FAR = Functioning at Risk**

**NF = Not Functioning**

#### VI. Impacts to Wildlife are Not Disclosed

The DE provides information about specific wildlife species within the HMA, but provides no information about those species as they relate to the presence of wild horses. Population trend data for wildlife species is not presented. Then, inexplicably, the conclusion at page 33 of this DE states that “[a]ctions to restore the ecological balance include gathering and removing excess wild horses to the low AML of the HMA, and applying population control treatments to slow the growth of the wild horse population” are necessary to achieve and maintain “a thriving ecological balance and multiple use relationship between wild horse population, wildlife, livestock and plant communities within and outside the HMA.”<sup>[9]</sup> This leap to the conclusion that the wild horse population is negatively impacting wildlife in the HMA is unsupported. Simply put, including information about wildlife that are present in the HMA is inadequate “analysis.”

#### VII. The DE Fails to Analyze Human Activities

**There is no information in the DE regarding human activities in the project area and the associated impacts to rangeland health.** The BLM must disclose and analyze all impacts associated with any recreational activities, roads, energy infrastructure, or any other human activities that could have a negative impact on the resources analyzed in this DE.

Specifically recreational use of Off Highway Vehicles (OHVs) is one of the fastest growing outdoor activities, primarily in the western U.S. where >27% of the population used OHVs for recreation during a survey period in 1999-2004 (Cordell et al. 2005). More than one in three persons in rural areas and one in four living in cities participated in OHV recreation an average of 24 days/year during 1999-2004. The Pine Nut Mountains proximity to large urban and rural populations makes the area a popular place for OHV users and other All Terrain Vehicle (ATV) uses to utilize. This human activity -- which undeniably has dramatically increased over the pasts twenty years and even in the last five years -- has a negative impact on sage grouse **yet the DE makes no mention of this in the evaluation of causal impacts to the sage grouse population decline. The DE fails to even consider the negative impacts that OHV and ATV use in the HMA have on the sensitive desert terrain and to the sage grouse.**

#### VIII. The DE Fails to Analyze Impacts Associated with Climate Change

The analysis of the impacts associated with climate change is found entirely in the statement that “[a] few NF riparian areas are showing a drying trend over time, but data is not available to separate out the specific cause of the drying trend, potential causes include soil compaction; groundwater draw down from surrounding valleys; or climate change.”<sup>[10]</sup> There is no analysis on the impacts of climate change on rangeland health, vegetation communities, or associated wildlife communities. Instead, the DE places blame for a reduction in rangeland health or vegetation community diversity on wild horse populations and identifies the only solution as removal of wild horses to the low AML.<sup>[11]</sup>

However, the DE does recognized that short term drought can have an impact on forage for wildlife, wild horses, and cattle. The following statement is included for 5 of the 7 BLM sensitive species of plants (Lavin’s and Margaret’s rush milkvetch, sand cholla, Tiehm’s peppergrass, and William’s combleaf):<sup>[12]</sup>

“The current on-going drought is thought to limit growth and the production of seed. Consequently little seedling establishment is expected for this year.”

Noxious and invasive weeds are discussed and their ability to displace native plants is disclosed. However, the impact of climate change on noxious and invasive weeds and their ability to out-compete native plants is not. The DE discloses the fact that cheatgrass is adapted to

recurring fires, but does not disclose what the anticipated fire-regime for the project area is, in light of climate change.[13]

The impacts of long-term drought and climate change on springs and other water resources within the HMA are not disclosed. How does a lack of water resources impact wild horse populations and behavior? Are wild horses forced to congregate in fewer springs that have less water due to drought and what impact is this having on the springs? Will reducing wild horse herd numbers solve this problem, or is there a different solution such as providing supplemental waters for wild horse herds that would better relieve the pressure on natural springs? This information should be provided.

#### IX. The DE Fails to Analyze the Impacts of Wild Horse Removals

Since the year 2000, 452 wild horses have been removed from this HMA. There is no information presented in the DE disclosing how the removal of these horses over the past 15 years has impacted the genetic diversity or structure of the herd.

Additionally, the fiscal impacts of wild horse removal are not disclosed. As you are aware, BLM is facing an escalating fiscal crisis off-the-range as a result of the mass removal of wild horses from the range and the stockpiling of captured mustangs in government holding facilities. The conclusion of the BLM in this DE includes the permanent removal of horses which will add wild horses to taxpayer-funded holding facilities. These factors must be disclosed and analyzed.

#### X. Public Observation Must Be Considered, Analyzed and Implemented

The BLM is well aware of the significant public interest in the agency's management of wild horses and burros and its roundup operations. Indeed the National Academy of Sciences (NAS) specifically recommended to the BLM to improve the transparency of its management of the Wild Horse and Burro Program. (See attachment 5.) The treatment of the horses is paramount.

Removal of wild horses from public lands negatively impacts the human environment for those who enjoy observing, photographing and researching these wild horses. Given the tremendous public interest and in fulfillment of the agency's claims to operate with full transparency, the following actions should be considered, analyzed and implemented to ensure that the Proposed Action is conducted in a manner that minimizes stress and injuries to wild horses and ensures interested parties have the ability to adequately monitor the Proposed Action:

- Trap sites should be located on public lands to allow public observation of roundup activities. No trap site shall be located on private lands for which the owners will not give permission for public observation of roundup activities.
- Real-time cameras with GPS should be installed on all helicopters used in roundup operations and video should be live streamed on the Internet. This will improve the transparency of roundup operations and enable the BLM and public to monitor the direct impact motorized vehicle usage has on wild horses and the environment.
- Real-time cameras should be installed on the trap, the corral and temporary holding pens, again, so that BLM personnel, public and media can monitor the entire roundup operation and treatment of the horses/burros.

The recommendation of real-time cameras is also supported by a report commissioned by [Cattoor Livestock Roundup](#), a long-time roundup contractor hired by the BLM which states, "**Video monitoring of animal operations is a good way to ensure humane handling is taking place on a daily basis.** Video cameras mounted in helicopters and in the capture and holding pens can also render the activists videos as simply nothing more than proof that your business 'walks the walk' when it comes to upholding animal welfare standards." The report was prepared by Mark J. Deesing, Animal Behavior & Facilities Design consultant for Grandin Livestock Handling System. Deesing, an assistant to the highly-regarded livestock industry consultant Dr. Temple Grandin.

Video cameras will improve the transparency of roundup operations and enable the BLM and public to monitor the direct impact motorized vehicle usage has on wild horses and the environment. In addition, real-time cameras should be installed on the trap, the corral and temporary holding pens, again, so that BLM personnel, public and media can monitor the entire roundup operation and treatment of the horses. AWHPC would be happy to provide technical assistance and financial assistance to establish these real-time cameras as described above.

The BLM must consider and analyze and alternative where fertility control is administered through darting or bait/water trapping.

If a helicopter is selected as a tool to round up and remove wild horses, the BLM must consider, analyze and implement humane standards as outlined in the attached Standard Operating Procedure (SOP). (Attachment 1.)

#### XI. Range Conditions

Recent observations of the northeastern portion of the HMA show miles of fencing, various rich meadows and functioning water sources. Very few horses and signs of horses were observed.

Sheila Schwadel, with the Pine Nut Wild Horse Advocates, along with local community members toured the northeastern portion of the HMA. They toured Como Road from Dayton to Churchill Canyon and back on Sunrise Pass. No wild horses were observed until they passed the town of Como. Cheat grass and fire damage was observed. Continuing through the burn area the first horses were observed -- a total of 12 horses in two small bands and three horses on a nearby hill. The horses appeared to be in good flesh with 5-6 Henneke body scores. Ample fencing was observed in the area.

At the mine, a flowing spring was observed with grasses, sagebrush, cottonwood and some Aspen. While there were signs of horses, the horse use was not heavy nor significant usage. There were also signs of other wildlife frequenting this area as noted by photos of paw prints (including deer, bobcat, coyote). A number of quail were observed. Vegetation appeared healthy with only moderate use. Impacts from significant Off-Highway Vehicle (OHV) usage was observed in the area. BLM Pinyon-Juniper removal -- cut trees stacked into burn piles -- were observed.

Continuing on Road PO1 a functioning stock pond was observed. Moderate horse use was documented. A band of 3 horses was observed in the distance. Fencing continued in this area. Along Sunrise Pass Road a fence line was noted. Numerous indications of springs with vegetation were observed and documented. A full spring-fed stock tank located just outside of a fenced area was observed. Further down Sunrise Pass a large green meadow was observed -- only one horse was observed in this area. Vegetation appears lush and healthy. Continuing up Sunrise Pass a newer fence line with cattle guard were observed. Healthy sage and grass habitat was observed; some sign of horse use was observed.

Photos of the above are available upon requests.

The tours of the northeastern portion of the HMA supports that horse use is not the causal factor for the declining sage grouse population -- rather fencing, OHV use, human activities, drought, fire/burn areas, possibly pinyon-juniper expansion and long-term cumulative impacts are having a far greater negative impact on sage grouse habitat than wild horse use.

## XII. The DE Fails to Adequately Disclose or Analyze Specific Data Relating to Wild Horse and Sage Grouse

The BLM states: "There estimated Bi-State sage-grouse population in the Pine Nut Mountains in 2009 was between 89-107 birds. There is an active lek in the HMA in the Mill Canyon area. There is a pending lek outside the HMA in the nearby Buckskin Range and a potential new lek outside the HMA in the south end of the Pine Nut Mountains on Bald Mountain." and "In the northeast portion of the HMA, the downward trend of upland vegetative communities coincides with wild horse use levels on perennial grass species in excess of 55 percent. **Horse use in this portion of the HMA has been identified as a causal factor contributing to the recent downward trend**.... With the exception of the Churchill Canyon and Sunrise allotments, virtually no livestock use has occurred within the HMA since 1995..."

While the BLM acknowledges that livestock grazing has occurred in the Churchill Canyon and Sunrise allotments and the BLM 2014 Wild Horse Census map shows few to no wild horses in the Churchill Canyon and Sunrise allotments -- the BLM provides no explanation for the agency's adamant position that horses are to blame for sage grouse population decline. It is unknown whether fencing keeps horses out of these allotments or why horses are not going into these areas. However, it is fairly well documented that fencing negatively impacts the sensitive sage grouse. It is also common knowledge that Spring grazing often has the most dramatic negative impacts on sage grouse. The DE fails to address the lack of or minimal horse use in these two eastern allotments which are key Connective Habitat and BiState Habitat. While the sage grouse population is not thriving in these allotments despite few to no horses present in the area.

*Management of sagebrush, usually to increase herbaceous forage for domestic livestock, has been and remains common throughout the distribution of sage grouse (Pechanec et al. 1954, Vale 1974, Laycock 1987). Treatments vary from short-duration livestock grazing to chemical and mechanical control of sagebrush. Depending upon type of treatment, sage grouse may alter their use or completely avoid treated areas (Braun et al. 1976, 1977 and many other references). Thus, treatments have altered sage grouse use of habitats throughout western North America. It is conservatively estimated that at least 50% of all western rangelands have been treated at least once with sage grouse use being slightly to heavily (complete avoidance) altered for periods of at least 2-3 years (minimum) to as much as 30 years.*

Clait E. Braun, Avian Research Program Manager, Colorado Division of Wildlife, [Sage Grouse Declines In Western North America: What Are The Problems?](#)

The DE fails to analyze the discrepancy between the BLM conclusion that wild horses are the causal factor in decline numbers of sage grouse in the HMA and the fact that there are no horses in two allotments and the sage grouse numbers have declined in those areas as well. **The DE fails to analyze the long-term cumulative impact that livestock grazing in the HMA continues to have on the sage grouse population today. As noted above, livestock grazing even just once alters sage grouse use for periods of at least 2-3 years (minimum) to as much as 30 years.** The BLM must evaluate the cumulative impact of livestock grazing in the HMA over the past 30 years and identify the long-term range alterations which continue to impact the range and sage grouse today.

### a. DE Fails to Adequately Address Impacts of Fencing and Power Lines

More than 1,000 km of fences have been constructed each year on public lands from 1996 to 2002; linear density of fences exceeded 2 km/km . The DE fails entirely to address or analyze the impact that fencing has on sage grouse populations in the Pine Nut Mountains.

*Historically, large expanses of sage grouse habitat were not fenced. Fences have been used to delineate property boundaries and to manage livestock. Fence management frequently requires trail access along them and some may be brush beat on one or both sides. Fences with maintained trails adjacent to them are most negative for sage grouse as they are travel corridors for potential predators. Similarly, fences with wood posts provide perch sites for potential avian predators. Sage grouse in some areas in Colorado avoid fences, possibly because of predator activities. Thus, fences are capable of fragmenting useful habitats for sage grouse.*

*Sage grouse have been documented to be negatively impacted by powerlines through accidental contact while in flight and through use of powerline poles as perches by raptors (Graul 1980, Ellis 1984, 1987).*

Clait E. Braun, Avian Research Program Manager, Colorado Division of Wildlife, [Sage Grouse Declines In Western North America: What Are The Problems?](#)

**The DE must analyze and disclose the fencing throughout the HMA and determine the negative impacts this fencing continues to have on sage grouse. In conjunction, avian predator or raptor numbers should be assessed to determine whether such predators may be utilizing fencing to prey upon sage grouse.**

### b. Riparian Areas

The DE mentions a small number of water sources that are fenced -- but fails to disclose what actions have been taken to protect or restore water sources.

While the BLM indicates there is a record of 83 water sources in the HMA and 31 of those have perennial surface water and are considered water sources for wild horses, livestock and/or wildlife -- only 26 riparian areas were assessed. The DE does not make clear whether the 26 assessed riparian areas are among the 31 perennial surface water sources or if the BLM is assessing some of the 34 locations which may have "old development" but no surface water.

"The BLM has record of 83 water sources in the HMA. Based on field remarks from the BLM Water Resource Inventory (1980), **31 water sources (or 37 percent) have perennial surface water and are considered water sources for wild horses, livestock and or wildlife**; 34 locations (or 41 percent of the total water sources) may have riparian vegetation or an old development, but do not have surface water available for use or measurements; **and 18 locations (or 22 percent of the total water sources) are unknown for water availability** and/or may vary seasonally. .... **Of the 26 riparian areas assessed**, 23 percent are in PFC; 19 percent of the riparian areas are rated FAR with a downward trend; and 58 percent of the riparian areas assessed are NF..."

#### c. DE Fails to Adequately Address Impacts of Expansion of Pinyon-Juniper and BLM Prior Policy to Destroy Sagebrush

The DE fails to address the impact that the expansion of Pinyon-Juniper is having on forbes, forage and cover necessary for healthy sage grouse populations.

*Changes in herbaceous cover and litter coupled with control of fire can lead to establishment and expansion of pinyon (Pinus spp.) and juniper (Juniperus spp.) into sagebrush-dominated rangelands (Miller and Wigand 1994, Miller and Rose 1995, Davenport et al. 1998). Expansion of pinyon and juniper into habitats used by sage grouse reduces the use of these areas by sage grouse as they generally avoid areas with conifers, apparently because of predation pressure (Commons et al. 1998).*

Clait E. Braun, Avian Research Program Manager, Colorado Division of Wildlife, [Sage Grouse Declines In Western North America: What Are The Problems?](#)

In addition, the DE fails to take into account and analyze the BLM prior policy that involved the destruction of sagebrush to maximize forage production for livestock. **The DE fails to analyze whether the HMA was included in the BLM policy to destroy more than 180,000 square kilometers of sagebrush between 1940 and 1994 -- with the peak period of sagebrush destruction in the 1960s. The BLM destroy more than 11,000 square kilometers annually (Miller and Eddleman 2001). The DE must analyze the impact the destruction of sagebrush 50 years ago may be having on the decline of the sage grouse in the last 20 years.**

### XIII. Issues For In-Depth Analysis Have Not Been Adequately Disclosed or Analyzed

The following information must be provided, considered and analyzed:

#### a. Livestock Grazing

- Rangeland assessment results (and full assessments should be provided in the Appendix) for the past five years for all areas in the Complex (including pastures, allotments, etc)
- 
- Methodology used to differentiate livestock usage impacts from wild horse impacts.
- Information regarding fencing within the HMAs, including information about water sources that are available to livestock but fenced off from horses.

#### b. Horses Outside the HMAs

- Maps showing the location of the horses outside the HMA, fence lines and water sources and all census data regarding the number of horses outside the HMA(s).
- An alternative for returning horses who have moved outside the HMAs back within the HMA boundaries.
- Identify and analyze factors that could explain why horses are leaving the HMAs.
- Mitigation measures that will allow horses to remain in the HMAs, including removal of fencing to allow full utilization of range, improved access to water sources, eliminating or reducing livestock grazing to make more forage available for wild horses, etc.

#### c. Costs of the proposed action

- Economic costs of the long- and short-term costs associated with the capture, removal and warehousing of the horses targeted for removal;
- Complete report of the disposition of horses removed from the project are in two previous roundups (2013 and 2014), including number of deaths; length of time spent in short-term holding; numbers of horses in long-term holding; numbers or horses adopted.

#### d. Impacts to Wild Horses

- 
- Complete analysis of the impacts of destruction of herd family band structures on wild horse biology, reproduction, behavior and well-being if horses are not allowed to maintain their social structures during the CTR.
- The current BLM "Standard Operating Procedures for Wild Horse Gatherers" is insufficient. The BLM must analyze existing information available to determine if improvements could be made to reduce potential stress and harm to the horses during the roundup, including the following:

1. Limit the distance horses may be chased by a helicopter to no more than five (5) miles.
2. Prohibit helicopter pursuit or forced movement of horses at a pace that exceeds the natural rate of movement of the *slowest* animal in the band. Every effort should be made to keep older, sick and young animals together with their bands as they are moved into the trap. If there are compromised, old, weak or young animals in a small band – the helicopter should not move or capture that band.
3. Establish strict parameters for suspending helicopter roundup operations in temperatures below freezing (32 degrees F) or over 95 degrees F.

## VII. An Adaptive Management Strategy Should be Fully Analyzed

Interior Secretary Order No. 3270 issued March 9, 2007, established agency policy to incorporate Adaptive Management into agency management programs. Under this policy, land use decisions can be adjusted in order to meet environmental, social and economic goals; to increase scientific knowledge; and to decrease tensions among stakeholders. There are numerous reasons why the BLM should apply its adaptive management policy to the management of the HMAs.

- **The BLM understands the high economic costs associated with the proposal to removal horses from the range and keep them in short-/long-term government holding facilities. Indeed, the BLM has repeatedly emphasized that the agency practice of rounding up and warehousing wild horses is not fiscally sustainable.**
- The BLM must consider and analyze the societal opposition to the removal of horses. Over the past few years, the BLM has received hundreds of thousands of letters from American citizens opposing roundups and in favor of reform of the Wild Horse and Burro Program, including a shift away from roundup and removal toward on-the-range management of wild horses, as well as in favor of re-apportioning the resource allocation pie to give horses an appropriate share of resources by decreasing or eliminating livestock grazing in HMAs.

## VIII. Conclusion

AWHPC supports the BLM's plan to use fertility control, both in the short and long-term, as well as to maintain the existing natural sex ratios for wild horses on the range. However, we oppose the removal of wild horses as a management tool – except in verifiable emergencies. Further, AWHPC urges the BLM to use bait and water trapping and/or remote darting to administer PZP fertility control and to only utilize helicopters after trapping and darting are proven unsuccessful.

Creative, out-of-the-box approaches will be needed – and the ability to try new approaches and adjust to make them as successful as possible is paramount. Now *is* the time, and *this is* the HMA to start a new chapter for the humane management of wild horses on the range.

In summary, the DE fails to disclose, consider and analyze the necessary information for this project. We look forward to an opportunity to review this important information after it has been collected, analyzed, and distributed for public review and comment.

We also look forward to working with you to create a model management program to Keep Wild Horses Wild.

Thank you.



### Attachments:

1. AWHPC Draft Standard Operating Procedure
2. Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming.

[1] Pine Nut Mountains Draft DE, page 32-33.

[2] Pine Nut Mountains Draft DE, page 7.

[3] Pine Nut Mountains Draft DE, pages 8.

[4] Pine Nut Mountains Draft DE, pages 9-10.

[5] Pine Nut Mountains Draft DE, page 12.

[6] Pine Nut Mountains Draft DE, page 8.

[7] Pine Nut Mountains Draft DE, page 12.

[8] Pine Nut Mountains Draft DE, page 24.

[9] Pine Nut Mountains Draft DE, page 33.

[10] Pine Nut Mountains Draft DE, pages 25, 32, 47.

[11] Pine Nut Mountains Draft DE, page 32.

[12] Pine Nut Mountains Draft DE, pages 19-20. Note that the other two BLM sensitive species (Churchill narrows buckwheat and Pine Nut Mountains mousetails) are not discussed at all.

[13] Pine Nut Mountains Draft DE, page 21.

## **Standard Operating Procedures for Wild Horse Treat-and-Release Gathers (DRAFT)**

These Standard Operating Procedures (SOP) for Wild Horse Treat-and-Release Gathers are to be used in conjunction with the Standard Operating Procedures (SOP) for Wild Horse Gathers. The following procedures for conducting a treat-and-release program will maintain the integrity of wild horse family bands in order to minimize trauma and disruption and facilitate successful release of treated bands back to the range. These SOPs for treat and release protocols shall apply whether a contractor or BLM personnel conduct a gather. For the purposes of this document, family bands and social groups refer to bachelor bands as well as stallion-led harem bands.

### **A. Pre-capture Evaluation of Existing Conditions**

1. In advance of the gather, ongoing field observation shall be conducted and documented for identification of bands, individuals within bands and locations of bands to be gathered. Individual health or lameness issues should be noted.
2. In addition to the requirements set forth in the SOP for Wild Horse Gathers, the pre-capture evaluation shall include an assessment of the location, number of bands and individuals in each band to be gathered, as well as color markers that distinguish individual bands. A photographic record shall be made for this pre-gather assessment. This will facilitate planning of the capture operation and configuration of trap and holding pens.
3. Prior to the gather, motion-sensor cameras shall be installed at strategic locations, i.e. watering holes, to facilitate identification of individual bands.

### **B. Capture Methods used in the Performance of Gather Contract Operations**

1. In order to keep horses in a band together, the rate of movement of the animals should not exceed the natural rate of movement of the slowest animal in the band. Every effort shall be made to keep older, sick and young animals together with their bands as they are moved into the trap.
2. If a member of a band is separated during the gather, an assessment will be made as to whether that animal should be gathered. In the event the animal is gathered, every effort will be made to place and hold that animal with its original band members after the animal is brought into the trap.
3. Solitary animals shall not be gathered.
4. Every effort shall be made to bring individual bands into the trap separately. If this is not possible, the number of bands brought into the trap per run shall be kept at a minimum to ensure the integrity of the social groups.
5. The number of bands captured per day shall be planned according to the pre-capture evaluation and shall not exceed the capacity of the holding pens to maintain horses within their family bands.

### **C. Construction of Traps and Holding Facilities**

1. The temporary holding pens shall be constructed at the trap site. Both trap pens and holding pens shall be constructed to accommodate the maintenance of intact family groups and shall be configured based on the number and size of bands identified during the pre-capture evaluation. Pens shall be made as large as possible to reduce stress and tension among the animals.
2. A number of holding pens should be constructed away from other pens and can be separated by alleyways in order to provide adequate space to reduce tensions between bachelor and harem bands.
3. Pens with shared paneling shall have snow-fencing or a similar visual barrier on the shared paneling to minimize stallion interaction.
4. Bands, including bachelor bands, shall be housed individually. No mixing of social groups shall occur.
5. The on-site holding pens shall be equipped with stationery or mobile chutes and other necessary equipment to allow for processing and application of fertility drugs at the trap location.
6. In the event that holding pens are constructed at a separate location from the trap site, family bands members shall be identified and documented and will be kept together at all times during the holding period.

### **D. Holding and Release of Wild Horses**

1. Horses shall be held in intact family bands, including bachelor bands,.
2. Every effort shall be made to treat and release horses in the shortest time possible, after the horses have been given time to rest and recover from the gather, with the goal of treating and releasing horses within 24 hours of capture.
3. Bands shall be released at the same trap location where they were captured.
4. Bands shall be released individually, with sufficient time between band releases to allow the safe dispersal of horses back to the range.

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## Re: Request for extension on public comment period for draft Evaluation of Pine Nut Mountains HMA

1 message

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[REDACTED]

We are more than happy to provide you with the additional 30 days, extending the comment period to October 22nd. Please use this email as the official notification of this extension. We will work with Public Affairs to get a new press release out.

On Fri, Sep 11, 2015 at 6:09 PM, [REDACTED] wrote:  
September 11, 2015

[REDACTED] nt

### Re: Request for extension of public comments on draft Evaluation for the Pine Nut Mountains Herd Management Area

Dear Sirs:

The American Wild Horse Preservation Campaign (AWHPC) hereby formally requests that the Bureau of Land Management (BLM) allow an additional thirty (30) days to respond to the BLM's "draft Evaluation for the Pine Nut Mountains Herd Management Area (HMA)."

In order for members of the public and AWHPC to provide meaningful comments on "vegetation condition, utilization levels, riparian condition and wild horse condition" more than two weeks notice is needed. The BLM's request seeks specific data and requires more than 14 days for the public to provide meaningful comments.

Please extend the public comment period to allow the public and AWHPC the time necessary to carefully and thoughtfully review the draft Evaluation and gather potentially important site-specific data for preparation of the final Evaluation. Citizens cannot participate meaningfully in the National Environmental Policy Act (NEPA) process with regard to BLM actions and policies when sufficient time is not provided. NEPA requires the opportunity for meaningful public participation and mandates that the agency "make diligent efforts to

involve the public in preparing and implementing their NEPA procedures.” 40 CFR § 1506.6 (a).

An 30-day extension of the comment period is reasonable given the importance of this Evaluation and the dire impacts it will likely have on wild horses and the long-term impact it may have on management of wild horses in the Pine Nut Mountains HMA.

As you may know, the American public is very concerned about the fate of the West's wild horses, who are embraced as cherished in our national heritage. Due to widespread public concern, we request that the public comment period be extended.

[Redacted]

[Redacted]

[Redacted]

[Redacted]



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September 21, 2015

U.S. Department of the Interior  
Bureau of Land Management  
Carson City District Sierra Front Field Office  
5665 Morgan Mill Road Carson City, NV 89701  
[pinenuthorses@blm.gov](mailto:pinenuthorses@blm.gov)

[REDACTED]  
[REDACTED]

Re: Pine Nut Herd Management Area DRAFT HMA EVALUATION September 2015

I first request a reply as to why notice of this draft evaluation was given with so little time for the public to comment. Two weeks is not sufficient time for public notification and response. This is not an emergency and the public should have been given at least 30 days to analyze the document and to respond.

The Public Lands have been a very important part of life in our family. Most of our free time was spent there when our children were growing up, and that is where they learned to respect and value nature and wildlife. I feel that it is a civic responsibility to pay attention to and enter into decisions that impact this irreplaceable treasure that belongs to all of us. Our Public Lands are the last vestige of natural habitat in America and no amount of money can replace that.

Public ownership of lands is something that sets us apart from most other industrialized countries. They don't have what we have. We should not allow private or corporate interests to usurp the Public Interest. There is no amount of money that can replace what Nature has provided.

It is disturbing to see that much of what we have enjoyed in those past years has disappeared or been drastically altered. There are now domestic livestock fences where once there was open access. Vast swatches of native trees have been clear cut. There are no sounds of wildlife. Something is drastically wrong and corrections must be made.

#### **WILDLIFE**

[Sharing the Land with Pinyon-Juniper Birds - Partners in Flight](http://www.partnersinflight.org/pubs/PJ%20manual%20Nov%2008%20low-res.pdf)  
<http://www.partnersinflight.org/pubs/PJ%20manual%20Nov%2008%20low-res.pdf>

*Across a broad spectrum of habitat types, no wildlife group is as species-rich, as visible, or as vocal as birds. Juniper woodlands are no exception - more than 70 species are known to breed in pinyon-juniper woodland. Juniper woodlands support one of the highest proportions of obligate or semi-obligate bird species among forest types in the West (Paulin et al. 1999). Species closely tied to pinyon-juniper (scientific names of all species mentioned in the text are listed in the Appendix) include Black-chinned Hummingbird, Ash-throated Flycatcher, Cassin's Kingbird, Gray Flycatcher, Western Scrub-Jay, Pinyon Jay, Juniper Titmouse, Bushtit, Bewick's Wren, Northern Mockingbird, Blue-gray Gnatcatcher, Gray Vireo,*

*Black-throated Gray Warbler, Lark Sparrow, and Black-chinned Sparrow (Balda and Masters 1980). However, not enough research and information is available on management practices that benefit bird communities in juniper woodlands.*

## **MULTIPLE USE PROJECTS**

All projects that impact air, water and soil ultimately impact Wild Horses and/or Wild Burros as well as all other Wildlife. All must be given thorough and careful thought and consideration. What are the short and long term and cumulative negative effects on wildlife for any and all multiple use projects on the Pine Nut HMA?

General and specific points of concern that must be addressed and thoroughly analyzed in order to comply with the mandates of the National Environmental Policy Act:

## **WATER**

Analysis of all water uses

Mines negatively impact surface water availability by draining water from aquifers. In fact, government scientists have estimated that it could take more than 200 years to replenish the groundwater removed by mining operations.

Who bears the burden of cost? The American taxpayers, who have not only lost the use of their Public Lands but also their WATER?

*40 US Mines are Causing Water Pollution that Will Last for Centuries, Says New Report*

*Water treatment for these mines could cost as much as \$67 billion per year*

[http://www.earthisland.org/journal/index.php/elist/eListRead/us\\_mines\\_are\\_causing\\_water\\_pollution\\_that\\_will\\_last\\_for\\_centuries\\_says/](http://www.earthisland.org/journal/index.php/elist/eListRead/us_mines_are_causing_water_pollution_that_will_last_for_centuries_says/)

*In Nevada, gold mines drink a desert dry*

[http://www.nytimes.com/2005/12/30/world/americas/30iht-gold.html?pagewanted=all&\\_r=2&](http://www.nytimes.com/2005/12/30/world/americas/30iht-gold.html?pagewanted=all&_r=2&)

The BLM's "multiple use" mandate does not require the agency to expand mining operations or to approve each and every mining proposal that is submitted.

Mining activity, oil and gas production, geothermal development, gravel pit expansion, road building, fencing, and wild horse gathers, are all activities, which can and will impact wild horse distribution and seasonal movement throughout and between HMAs. Each activity could result in incremental restrictions to free roaming behavior of wild horses and over time may influence utilization patterns, genetic interchange and use of water sources.

Cumulative impacts analysis of water uses

Impacts on local agriculture

Impacts on local communities (including socio-economic impacts) **POSITIVE IMPACTS OF WILD HORSE TOURISM NOT ADDRESSED**

Allure of **wild horses draw tourists** on a global scale  
<http://www.wildhorsepl.org/pdf/roameco.pdf>

### They want to see Wild Horses



Impacts on the Pine Nut Herd Management Area **WERE NOT ADDRESSED**

PINE NUT LAND HEALTH PROJECT/FINAL ENVIRONMENTAL ASSESSMENT  
DOI-BLM-NV-C020-2013-0017-EA

The planning area of this project includes 24,564 acres. The Pine Nut Wild Horse Herd Management Area is located within the planning area. This substantial project must be discussed and included in any NEPA document affecting the Pine Nut wild horses. A current and encompassing review is required that will include an assessment of the effects of the Land Health Project EA on the current and any upcoming status of the Pine Nut wild horses and their habitat, including this draft proposal.

[https://www.blm.gov/epl-front-office/projects/nepa/36259/47899/51982/Final\\_EA.pdf](https://www.blm.gov/epl-front-office/projects/nepa/36259/47899/51982/Final_EA.pdf)

HERCULES EXPLORATION PROJECT/FINAL ENVIRONMENTAL ASSESSMENT  
DOI-BLM-NV-C020-2014-0033-EA

The Hercules Exploration Project area is within the Pine Nut Herd Management Area and the proposed NEPA draft must seriously consider the effect of this project' activities and how they effect and prevent migration or access to water by the wild horses, the acreage of the project is within the historical boundary of the legally designated Pine Nut Herd Management Area. Therefore, the horses will be affected beyond migration and water access issues, including loss of habitat and fragmentation and air and water quality within their legal Pine Nut range.

[https://www.blm.gov/epl-front-office/projects/nepa/41037/52228/56919/Final\\_EA.pdf](https://www.blm.gov/epl-front-office/projects/nepa/41037/52228/56919/Final_EA.pdf)

Taxpayer investments in infrastructures that ultimately benefit private corporations

Impacts on ALL Wildlife, including aquatic species

Evaluate all alternatives

Provide and evaluate a NO ACTION ALTERNATIVE

The public must be given, in clear and concise language, measures that will be implemented to enforce rules and RESPECT for the rules that protect and govern use of Public Lands. Our Public Lands, Wildlife and Natural Resources belong to ALL of us AND to our future generations.

There should be NO re-seeding with any non-native grasses.

There should be NO aerial spraying with any herbicides.

There should be NO "mowing, chopping, chaining...or any use of any heavy equipment" on this fragile high-desert land as has been done with the Juniper and Pinyon clearing projects.

More About "Encroaching" Junipers on Juniper Mountain  
by Ken Cole (excerpts below)

*While investigating the claim that junipers don't belong on Juniper Mountain, I was asked to look at the original public lands surveys found on [General Land Office Records site](#) and found surveys for this landscape from 1914 and 1921. While the surveys don't quantify junipers or show their density they do document their presence and in the General Description notes at the end of each survey the surveyors noted "thick juniper" and "scattered juniper" in every township. When doing the surveys the surveyor walked the lines between each and every section (a square mile) to mark section corners and quarters. At the end of each section line they noted the type of timber. To map this I read the notes for each and every section line and noted the documentation of juniper. I was able to give each section a score of 0 to 4. If all four section lines noted "timber: juniper" then the section was given a score of 4. What I found was that nearly every section had juniper presence just as they do today. The surveys also mention "good growth of bunch grass which affords excellent range" even though today the understory is composed of very sparse grass and a nonnative semi annual grass called *Poa bulbosa* that is a very poor range plant with little habitat value. Small islands of these healthy bunch grasses can be seen in areas that can't be reached by cattle and the contrast is quite startling.*

<http://www.thewildlifeneews.com/2013/03/07/more-about-encroaching-junipers-on-juniper-mountain/>

## **WILDFIRES**

“Natural and human-caused wild land fires are likely to occur in the future.”

Wild Horses and/or Burros must NOT be removed. They provide a very valuable defense against wildfires. As predicted on the Northern California/Nevada public land, removal of the Twin Peaks Wild Horses in 2010 was followed by the catastrophic Rush Fire in 2011.

Twin Peaks and Pine Nut HMAs have similar high desert sage steppe environments

<https://app.box.com/shared/qgnn27pdk1>

*It should be noted that many of the golden, grassy swards we overflow and for which wild horses and burros, as post-gastric digesters, are pre-adapted to graze without over-expending metabolic energy, would now be more prone to fire. Many such fires are caused by lightning strikes that accompany thunder storms, especially prevalent during summer months in the Great Basin. Recommendation: A much better wild horse habitat could be allowed in this vast HMA if the water tables were to be restored and a much fairer allocation of forage were to go for the wild horses. I would recommend at least 50% for the wild horses in the area and a restoration of at least 1,000 horses at least 200 burros here. Many of those just gathered should be set back reproductively intact.*

*A Further Observation: This concerns the location of the Twin Peaks HMA itself. To have been located in such dry and barren areas indicates an initial unfairness toward the wild horses, and I wonder whether “where found in 1971” used to establish the herd areas was initially honestly applied. That these resourceful animals still manage to survive here in spite of this is a testimony to their ingenuity, their suitability to desert habitat, and their tenacity. This is something to be admired rather than despised. Indeed, the wild horses and the burros of Twin Peaks HMA are a great asset to the region. They enhance the diversity of species by contributing to soils and seeding many plants, by serving as a prey and a scavenged species, plus they are remarkably beautiful and spirited presences, inspiring to artists, writers, photographers, naturalists and even musicians, both locally and nationally, even world-wide. But whether we capture their images or sounds, just to witness them, some would say just to know they're there safe and sound in some of the vast and scenic regions of the West gives a sense that “God is in Heaven and all is well with the world.” In other words, it is essential there remain places where such magnificent creatures are still free to roam, to pursue their age-old course and to perfect themselves over time, according to the Higher Plan, that includes us all.*

## **FENCING**

There should absolutely be NO fencing. Fencing negatively impacts every wildlife creature that lives on Public Lands as found in the following story and photo: [http://wyofile.com/high\\_country\\_news/the-perilous-journey-of-wyomings-migrating-pronghorn/](http://wyofile.com/high_country_news/the-perilous-journey-of-wyomings-migrating-pronghorn/)

## **CATTLE GUARDS**

Remove or replace ALL cattle guards with safe “Wild Horse Annie” modified cattle guards.

Remove cattle guards an/or retrofit them with Wild Horse Annie guards

This should NEVER have happened:

### ***Tragedy in the high desert***

*Wouldn't you know it? The only manmade thing for miles claimed this teenage mare. She has taught us much from the study of her feet, so we'll put them up for you, too. This was an interesting look into the hooves right after the snow melt, when they should be their worst. While we obviously never saw this mare move, we can only assume she had the perfect soundness as all of the other horses in the area. Her hooves definitely show the health and the miles of use.*



<http://www.hoofrehab.com/Article/Wildhorses/Sub%20page/WildHorsePictures.htm>

## **SAGE GROUSE DECLINES IN WESTERN NORTH AMERICA: WHAT ARE THE PROBLEMS?**

The following three articles say it all. In reviewing both articles and trying to decide which parts pertain to the Pine Nut HMA, I came to the conclusion that ALL parts pertain, more-so now than when they

were written. As an agency that has been given the very important responsibility of protecting our Public Lands, Wildlife and Natural Resources, you should also read and review these articles.

WE are the problem, UNLESS we learn from the past. Our remaining open lands and Wildlife must be valued, respected and protected

SAGE GROUSE DECLINES IN WESTERN NORTH AMERICA:  
WHAT ARE THE PROBLEMS?

<http://www.rangenet.org/projects/grouse/grouse01.html>

Clait E. Braun  
Avian Research Program Manager  
Colorado Division of Wildlife

*Reprinted from: 1998. Proc. Western Assoc. State Fish and Wildl. Agencies 78:000-000.*

REASONS FOR CHANGES IN DISTRIBUTION/ABUNDANCE

Habitat Loss

### Agriculture

Settlement of western rangelands was encouraged by a series of Homestead Acts starting in 1862 (Todd and Elmore 1997). Most land with agricultural potential was homesteaded and in private ownership by 1930. With advent of a series of low precipitation years, some lands were abandoned and reverted to public ownership. This occurred primarily at the periphery of sage grouse range. Much of the land originally homesteaded was plowed and planted to agricultural crops. Some areas could not support annual or biennial crop production and reverted to pastures or rangeland. The advent of irrigation projects, some as early as the 1880's, intensified land use (Todd and Elmore 1997) and resulted in additional loss of sage grouse habitat. Ploughing of private lands to convert rangeland to cropland continues, although at an extremely low rate. Swenson et al. (1987) documented decreases of sage grouse in Montana following ploughing of sagebrush steppe.

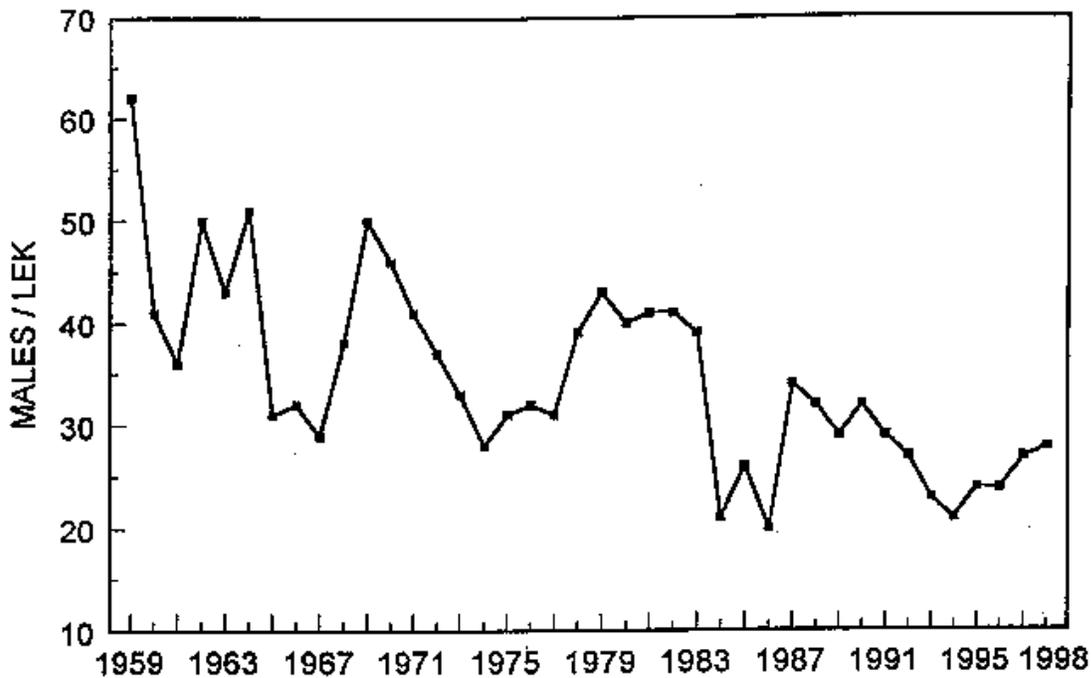


Fig. 1. Trends in numbers of male sage grouse counted per lek, Jackson County, Colorado, 1959-98.

### Mining/Energy Development

Development of mines and energy resources in western North America was initiated prior to 1900 (Robbins and Wolf 1994). Oil development intensified in the 1930's and 1940's while gas development continues to the present. Other major mining activity within sage grouse habitats has been for gold, uranium, trona, and especially coal.

The magnitude of the impacts of these activities on sage grouse and their habitat is largely unknown. Development of open pit mines (primarily for coal) and the associated roads, powerlines, noise, and increased human activities clearly negatively impacted sage grouse numbers and habitat in the short term. However, studies in Montana, Wyoming, and Colorado indicated some recovery of sage grouse populations after initial development and subsequent reclamation of mine sites, roads, etc. (Eng et al. 1979, Tate et al. 1979, Colenso et al. 1980, Scott and Zimmerman 1984, Braun 1986). Remington and Braun (1991) concluded that sage grouse were displaced by coal mining activities but returned to fluctuating predisturbance levels once mine activity ceased. Braun (1987) reported similar findings for sage grouse in areas impacted by oil development. In the area Braun (1987) studied in Jackson County, Colorado, oil development was initiated in the mid 1940's and reports of sage grouse in the oil field area decreased. By the mid 1970's, sage grouse again were present in the developed area and populations fluctuating with no large increases or decreases through 1998. The anecdotal evidence (1946-72) indicates the sage grouse population markedly decreased and then increased to at least one-half of predevelopment levels by 1973 and then maintained itself at the 1973-75 level with regular fluctuations through 1998. It is

reasonable to conclude that as oil/gas developments mature and disturbed areas are reclaimed, similar to mined areas, sage grouse will repopulate the area. However, there is no evidence that population levels attain their previous size. Further, length of time to population re-establishment may be at least 20-30 years. Thus, there is both short-term and long-term (permanent facilities) habitat loss for sage grouse because of energy development and mining.

#### Ranches/Farm Sites

Placement of farm and ranch buildings was affected by availability of water, shelter, and building materials as well as access. Examination of abandoned and active farm/ranch sites within the distribution of sage grouse indicate that a high proportion are in areas that could be expected to be used by sage grouse. These developments would appear to affect about 1% of the original sage grouse range. However, because of their location in areas with better soils and water, it is reasonable to conclude that development of farm/ranch sites negatively impacted more than 1% of the sage grouse population.

#### Reservoirs

Creation of reservoirs throughout the distribution of sage grouse in western North America has resulted in direct inundation of hundreds of kilometers of riparian habitats useful for sage grouse broods. In addition, adjacent upland habitats useful throughout the year and especially in winter have been eliminated by fluctuating water levels as well as associated recreation areas for water enthusiasts. No estimate of area impacted is available but reservoirs larger than 50 ha clearly negatively affect sage grouse through loss of brood habitat, lek sites, and winter habitat.

#### Roads/Highways

Settlement of western rangelands resulted in development of road/highway systems dissecting sage grouse habitats. Most roads/highways were established without regard to important sage grouse use areas. Thus, roads/highways transect brood habitat, lek sites, winter habitat as well as migration corridors. In addition to loss of habitat, roads/highways cause direct mortality of sage grouse (especially high speed paved roads/highways) and may result in reduction of sage grouse use of leks within 1 km because of noise. No estimate of total direct or indirect habitat loss is available.

#### Town/Urban Sites

Selection of town sites during settlement resulted from a variety of factors including access, water, presence of building materials, safety, etc. Many sites clearly were sage grouse habitat and contained components that could be used for winter habitat, lek sites, and brood use areas. More recently, placement of residential dwellings and subdivisions in sage grouse habitats has become common. Some residences and subdivisions (ranchettes) are far removed from towns and have been placed within sage grouse winter and brood habitats as well as on

lek sites. This trend is continuing and may result in complete extirpation of sage grouse in some fragmented populations. It is estimated that 3-5% of all historical sage grouse habitat in Colorado has been negatively impacted by town and urban development. In some counties, up to 50% of the available sage grouse habitat is under development for ranchettes.

## Habitat Fragmentation

### Fences

Historically, large expanses of sage grouse habitat were not fenced. Fences have been used to delineate property boundaries and to manage livestock. They vary from 1 to 2 to as many as 5 strands of wire with some including woven wire with varying mesh size. Originally, most posts were wood but many fences are now supported by metal posts. Thus, fences are not equal in their potential to divide habitats useful to sage grouse. Fence management frequently requires trail access along them and some may be brush beat on one or both sides. Fences with 1-3 strands of wire are normally not negative to sage grouse although sage grouse have been observed and documented flying into fences. Woven wire fences are more negative to sage grouse as they cannot quickly fly or travel through them. Fences with maintained trails adjacent to them are most negative for sage grouse as they are travel corridors for potential predators. Similarly, fences with wood posts provide perch sites for potential avian predators. Sage grouse in some areas in Colorado avoid fences, possibly because of predator activities. Thus, fences are capable of fragmenting useful habitats for sage grouse. There is no estimate of the area impacted by fences within the distribution of sage grouse.

### Powerlines

Placement of powerlines within sage grouse habitats dates to the late 1800's to the advent of telegraph, telephone, and electrical systems. Sage grouse have been documented to be negatively impacted by powerlines through accidental contact while in flight and through use of powerline poles as perches by raptors (Graul 1980, Ellis 1984, 1987). Use of areas near powerlines by sage grouse, as measured by pellet transects, increases as distance from the powerline increases for up to 600 m (C.E. Braun, unpubl. data). Powerlines fragment habitats useful to sage grouse and reduce their security in linear strips up to >1 km in width. There is no estimate of the area impacted by powerlines available. It is possible to markedly reduce the impact of powerlines upon sage grouse through elimination of raptor perch sites.

### Treatments

Management of sagebrush, usually to increase herbaceous forage for domestic livestock, has been and remains common throughout the distribution of sage grouse (Pechanec et al. 1954, Vale 1974, Laycock 1987). Treatments vary from short-duration livestock grazing to chemical and mechanical control of sagebrush. Depending upon type of treatment, sage grouse may alter their use or completely avoid treated areas (Braun et al. 1976, 1977 and many other references). Thus, treatments have altered sage grouse use of habitats throughout western North America. It is conservatively estimated that at least 50% of all western rangelands have been treated at least once with sage grouse use being slightly to heavily (complete avoidance) altered for periods of at least 2-3 years (minimum) to as much as 30 years.

## Other Factors Fragmenting Habitats

Ranch/farm development, reservoirs, and roads/highways all fragment sage grouse habitats by making areas unsuitable for seasonal use. Fragmentation caused by reservoirs and roads/highways is linear while that caused by ranch/farm (and town/urban) development is circular. All of these factors negatively impact sage grouse habitats as sage grouse have been documented as landing (unable to cross large reservoirs) in reservoirs and drowning in May-August, being impacted by vehicles during all seasons, and avoiding (radio-marked birds) active farm/ranch and town sites in all seasons except the mid brood-rearing period. The amount of habitat impacted by these factors is unknown.

## Habitat Degradation

### Treatments

Sagebrush and associated habitats used by sage grouse have been altered since at least 1850-1860 by biological and mechanical treatments (livestock grazing and herding) and the late 1940's by applications of chemicals to control sagebrush. No areas used by sage grouse are known to have escaped treatment. Domestic livestock alone have grazed over most, if not all, areas used by sage grouse. Unlike historic use by wild herbivores of the vast area originally used by sage grouse, use by domestic livestock is repetitive with annual or biennial grazing periods of varying timing and length. Domestic livestock grazing has been shown to have ecological costs (Fleischner 1994, Robbins and Wolf 1994, Brown and McDonald 1995, Paine et al. 1996, Brown and McDonald 1997, Clements and Young 1997, Dudley 1997, Bork et al. 1998, Dobkin et al. 1998). Further, it has been demonstrated through enclosure studies that domestic livestock alter ecosystem processes by reducing water infiltration rates and cover of herbaceous plants and litter as well as disturbing and compacting soils and increasing soil erosion (reviewed by Belsky and Blumenthal 1997). Changes in herbaceous cover and litter coupled with control of fire can lead to establishment and expansion of pinyon (*Pinus spp.*) and juniper (*Juniperus spp.*) into sagebrush-dominated rangelands (Miller and Wigand 1994, Miller and Rose 1995, Davenport et al. 1998). Expansion of pinyon and juniper into habitats used by sage grouse reduces the use of these areas by sage grouse as they generally avoid areas with conifers, apparently because of predation pressure (Commons et al. 1998).

Fire, like domestic livestock grazing, can be considered a biological treatment of sagebrush-dominated habitats. Several species of sagebrush (*A. cana*, *A. filifolia*) resprout after burning suggesting they evolved with fire. Big sagebrush (*A. t. tridentata*, *A. t. vaseyana*, *A. t. wyomingensis*) is killed by fire and does not resprout after burning (Wright et al. 1979) suggesting it evolved where fire was infrequent. While wild fire was widespread in historic times and encouraged by native people, fire intervals are unknown but probably did not exceed 30 to 50 years (Bunting et al. 1987, Bunting 1994). Burning of rangelands at the sagebrush:pinyon/juniper interface was most likely responsible for controlling the spread of pinyon and juniper into sagebrush rangelands (Bunting 1994, Evans and Workman 1994). It is unlikely that fire burned areas uniformly and large areas were unburned for decades (Winward 1984, Braun 1987). Sage grouse may respond to fire by foraging on forbs within burned areas (Pyle and Crawford 1996) as burning can enhance forb production (Cook et al. 1994). However, a clear positive response of sage grouse to burning has not been demonstrated (Benson et al. 1991, Fischer et al. 1996, Connelly and Braun 1997,

Connelly et al. 1998). Prescribed fire has been promoted as a tool to improve sagebrush habitats (Winward 1991) for both livestock and wildlife. The total area burned by prescribed and wild fires at 10-year intervals within the distribution of sage grouse is unknown but appears to be increasing (Connelly and Braun 1997).

Mechanical treatments of sagebrush generally involve brush beating, disking, chaining, and riling (Pechanec et al. 1954). these practices were initiated in the 1930's and have continued at relatively low levels (because of costs) to the present. Brush beating in strips with untreated areas twice the width of treated strips appears to have potential benefits to sage grouse by improving herbaceous cover, forb production, and resprouting of sagebrush. Mechanical treatments, especially when coupled with reseeding of exotic grasses, in large (>100 ha) blocks has degraded sage grouse habitats by altering the structure and composition of the vegetation community (Blaisdell et al. 1982, Lancaster et al. 1987). The total area of sage grouse habitat involved with mechanical treatments is unknown.

Chemical control of sagebrush has been accomplished with 2,4-D, 2,4,5 -T, and Tebuthiuron with 2,4-D being most commonly used from the early 1960's until the late 1970's. Because of health concerns, use of 2,4-D and 2,4,5 -T was curtailed in the 1980's but use of 2,4-D is again increasing. Use of Tebuthiuron to control sagebrush began in the late 1970's and increased in the 1980's and 1990's until, at present, it is the preferred herbicide by both private individuals and public agencies. Response of vegetation to 2,4-D is relatively well understood depending upon time of application and plant phenology. Tebuthiuron is a delayed-response herbicide and effectiveness is dependent upon soil characteristics, moisture, as well as application rates (Emmerich 1985). Sage grouse response to herbicide treatment is predictable (Braun et al. 1977) and depends upon extent of kill of forbs and sagebrush. Herbicide treatments in relatively narrow strips (<50m) with non-treated strips of equal or greater width has not been shown to have positive or negative effects on sage grouse. All block treatments >200 ha in size have negatively impacted sage grouse (Braun and Beck 1996). Millions of hectares of sagebrush have been treated with herbicides to control sagebrush since the early 1960's but total size of area treated is unknown but probably exceeds 20-25% of the total remaining sagebrush-dominated rangelands. Expected treatment life for sagebrush treated with herbicides has been widely debated but is no less than 15 years and probably not longer than 25-30 years.

Chemicals have also been used to control insects on sagebrush rangelands and adjacent areas. Insects of concern have primarily included grasshoppers, mormon crickets, and mosquitos. Little is known about the direct or indirect effects of insect control upon sage grouse although (Johnson and Boyce 1990) found that sage grouse chicks died of malnutrition if insufficient numbers of insects were available. Blus et al. (1989) documented sage grouse mortality attributed to use of organophosphorus insecticides used on cultivated crops. The extent of insecticide use in habitats seasonally used by sage grouse is unknown as is the size of the area involved. However, Johnson and Boyce (1990) reported that 5 million hectares of western rangelands were sprayed for grasshopper control between 1980 and 1985.

## **Natural Changes**

## Drought

Sagebrush-dominated rangelands are generally xeric with average annual precipitation ranging from 15 to 32 cm. Evaporation:transpiration ratios are generally high except in northern latitudes and effective moisture for plant growth is extremely variable. Drought commonly occurs either seasonally or for periods of several years and is normal within the distribution of sage grouse. If average moisture conditions are considered, generally on-half of each 10 or 20 year period will have less than average moisture (Palmer 1965). Thus, habitat management for average herbaceous production could result in improper use in 50% of the years. Declining sage grouse populations in the mid 1930's coincided with drought (Patterson 1952:68-69) throughout the west. A period of dry years in the late 1980's and early 1990's also seemed to coincide with apparent low sage grouse populations (Connelly and Braun 1997). Drought is believed to affect sage grouse populations through increased nest predation and early brood mortality caused by decreased herbaceous cover and forb availability which may also affect insect abundance (Klebenow and Gray 1968, Peterson 1970, Drut et al. 1994 *a* and *b*, Gregg et al. 1994, Fischer et al. 1996).

## Predation

Predators are commonly believed to negatively impact sage grouse populations and, it is true, that every sage grouse will eventually be eaten. Thus, it does not matter whether death occurs in accidents (and the carcass is scavenged) or the bird is harvested (and eaten by humans) or the bird is captured and killed by a predator. Of most importance is the timing of death. Nest loss to predators is most important as potential production of young and recruitment may be seriously impacted. Removing predators has been documented to have a large positive effect on hatching success but was not significant in affecting breeding population size (Cote and Sutherland 1997). Sage grouse nest loss has been attributed to many types of predators (Batterson and Morse 1948, Patterson 1952, Braun et al. 1977, Autenrieth 1981). Gregg et al. (1994), DeLong et al. (1995) and Sveum et al. (1998) suggest that nest success is related to herbaceous cover near the nest site. Taller, more dense herbaceous cover apparently reduces nest predation and likely also positively affects early brood survival. Predation of males at lek sites is also common but likely has little overall impact on breeding success or population size except in small populations (Commons et al. 1998). Predation during extreme winters with extensive and deep snow cover may negatively affect size of the breeding population. Generally, it is believed that quantity and quality of habitats used by sage grouse controls the importance of predation. Thus, predation would be expected to be most important as habitat size and herbaceous cover within live sagebrush decreases.

## Hunting

The effect of recreational harvest on subsequent sage grouse breeding population size is believed to be inconsequential as hunting mortality is thought to be replaceive and compensatory. The available evidence (Braun and Beck 1985, Zablan 1993) indicates that direct recovery rates (= annual harvest rate) range from 3 to 11% which is well below one-half of the annual mortality rate that hickey (1955) believed could be harvested. Zunino (1987) suggested that hunting could negatively affect sage grouse population size. This may be possible depending upon which segment (i.e., brood hens vs chicks vs adult males) of the population incurs the highest harvest mortality. However, if hunting seasons are delayed to allow population mixing in fall and with conservative bag/possession limits (1/2, 2/4), it is unlikely that subsequent breeding population size could be affected by recreational hunting. (Braun and Beck 1985, 1996).

### CONCLUSIONS

Distribution and abundance of sage grouse have markedly decreased since the advent of survey efforts. Overall distribution has decreased by an estimated 50% since settlement while apparent breeding population size has decreased from 45 to 80% since the early 1950's. Much of the decrease in population size has occurred since 1980. Declines in sage grouse abundance are mostly attributed to human-caused changes in sagebrush habitats with drought also implicated in short-term population fluctuations. The demonstrated declines in sage grouse populations are not attributable to one factor but instead have been caused by a complexity of factors. No undisturbed habitats occur within the distribution of sage grouse and active habitat management is needed on a landscape scale if populations are to remain viable, especially at the present periphery of the distribution. Conservation plans that are developed at the local community level appear to have the best opportunity for support and eventual success.

### ACKNOWLEDGEMENTS

Information upon which this paper is based is from the scientific literature, studies in Colorado from 1973 to the present, and data provided by the member states/provinces through the Western States Columbian Sharp-tailed Grouse and Sage Grouse Technical Committee of the Western Association of Fish and Wildlife Agencies. Many individuals have influenced my understanding of sage grouse and their use of sagebrush. I especially acknowledge R.E. Autenrieth, T.D.I. Beck, J.W. Connelly, J.A. Crawford, R.L. Eng, D.A. Klebenow, G.E. Rogers, and R.O. Wallestad for their research/management studies and willingness to share ideas. The Wyoming Game and Fish Department, especially J. Lawson, encouraged preparation of this paper. K.M. Giesen and T.E. Remington reviewed an early draft of the manuscript. While I have been encouraged by others, all inferences and conclusions are mine. This is a contribution from Colorado Division of Wildlife Federal Aid in Wildlife Restoration Project W-167-R.

In response to the statement on page 80 of the Pine Nut Draft HMA Evaluation, there is NO proof/data that Wild Horses are or have been the cause of overgrazing.

There is NO data to substantiate the premise that Wild Horse removals will improve conditions of the range.

*Page 80*

*“In many areas of this HMA only protected or partially protected perennial grasses are growing and able to produce seed. Continual overgrazing has reduced the carrying capacity of the northern portion of the HMA by about half of what it was in 1995. It will likely take decades of little or no grazing for the northern portion of the HMA to recover.”*

I submit the following articles and comments:

Wild Equines are NOT the cause of rangeland degradation:

#### **BLM WEIGHS WILD HORSE IMPACT MUCH MORE HEAVILY THAN CATTLE**

Agency Sage Grouse Review Puts Thumb on Scale to Magnify Wild Horse and Burro Effects

<http://www.peer.org/news/news-releases/2014/09/16/blm-weighs-wild-horse-impact-much-more-heavily-than-cattle/>

The method used by the U.S. Bureau of Land Management to assess range conditions is seriously skewed toward minimizing impacts from domestic livestock and magnifying those from wild horses and burros, according to an appraisal by Public Employees for Environmental Responsibility (PEER). As a result, the BLM’s approach to range management targets scattered wild horses and burros while ignoring far more numerous cattle.

The agency’s assessment is part of a 2013 report on factors influencing conservation of the Greater Sage-Grouse, a ground-dwelling bird whose numbers have declined as much as 90% across the West and which is under consideration for protection under the Endangered Species Act. That report concludes that twice the area of sage grouse habitat is negatively impacted by wild horses and burros than the area negatively impacted by livestock. A PEER appraisal of the methodology found –

BLM calculates the “area of influence” of wild horses and burros on sage grouse habitat based merely on their presence within Herd Management Areas in sage grouse habitat, while it considers livestock impact to have occurred only when livestock grazing allotments fail the agency’s Land Health Status (LHS) standard for wildlife;

If the agency used the same approach for calculating the area of influence of livestock within BLM grazing allotments on sage grouse habitat as it did for wild horses and burros, the area of influence for livestock would be roughly 14 times that given in the report and more than six times that of wild horses and burros; and

Within BLM’s own grazing allotment LHS database records, livestock grazing is cited as a cause of failure to achieve a land health standard 30 times more often than are wild horses and burros.

“At BLM apparently not all hooves are created equal,” said PEER’s Advocacy Director Kirsten Stade, noting that the LHS evaluations cover more than 20,000 grazing allotments and examine whether a

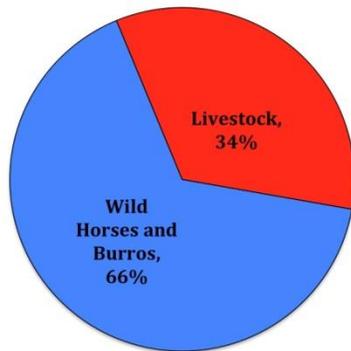
grazing allotment meets the agency’s standards for rangeland health with respect to several vegetation and habitat conditions. “This helps explain why wild horses are regularly removed from the range but livestock numbers are rarely reduced.”

The BLM assessment influences not only the agency’s range management decisions but also will figure into the Fish and Wildlife Service’s decision on whether to list the sage grouse under the Endangered Species Act.

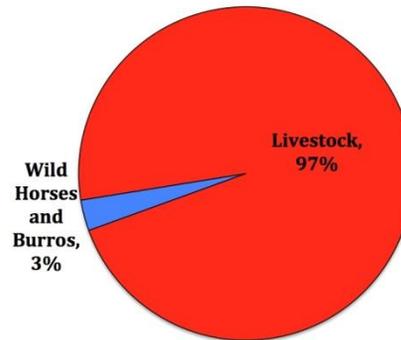
Last year in response to a complaint by PEER filed under agency Scientific Integrity policy, BLM claimed that it does not have enough “reliable data” about commercial livestock impacts to include them in current assessments of environmental conditions on Western range lands. Yet, BLM has more data on the grazing that it authorizes through permits than virtually every other topic.

“When it comes to cattle, BLM plays with a marked deck,” Stade added, pointing out the PEER analysis that will become part of PEER’s new grazing reform web center set to launch in several weeks. “We are posting BLM’s own data in a way that allows apples-to-apples comparisons while displaying satellite imagery that depicts the true livestock landscape impacts.”

**BLM claim in USGS report of wild horse & burro vs. livestock area of influence on sage-grouse habitat**



**BLM reference to livestock vs. wild horses & burros as cause of failure to attain land health standards**



***The relative negative influence area of feral ungulates with respect to domestic livestock based on BLM’s spatial analysis approach (USGS OFR 2013-1098) are completely at odds with BLM’s own land health standards (LHS) evaluation causal data, used to inform BLM’s analysis. BLM concludes in OFR 2013-1098 that the negative area of influence of feral ungulates is twice that of domestic livestock, when the records show that only 3% of grazing-related failures of standards are attributed to wild horses and burros.***

There is NO data to support the claim that Wild Horse removals improve rangeland recovery

GAO reviewed the Bureau of Land Management’s (BLM) efforts to: (1) manage wild horses on public rangeland in 10 western states; and (2) remove and dispose of excess wild horses under an adoption program.

GAO found that: (1) due to insufficient information, it could not determine how many horses ranges could support, the extent of degradation they caused, and the number of horses that should be removed from herd areas; (2) despite congressional direction, BLM did not base its removal of wild horses from federal rangeland on how many horses ranges could support; (3) BLM often did not accompany horse removals with a reduction in livestock grazing levels or effective range management, resulting in inhumane range conditions and exploitation; (4) the number of wild horses BLM removed exceeded its adoption program's capacity; (5) BLM terminated the program in September 1988 after negative publicity and congressional pressure, but did not rescind the regulations authorizing such adoptions; (6) many horses remained at prison facilities much longer than the 30 to 60 days needed to halter train them, resulting in increased program costs; and (7) BLM took steps to tighten management of the halter training program, but did not establish standards for the training time or the number and quality of trained horses the prison facility should produce. GAO believes that: (1) BLM will not be able to meet its objective of limiting wild horse sanctuaries' financial support to their first 3 years of operation; and (2) BLM will either have to commit to a long-term financial commitment to the sanctuaries or be prepared to have the horses returned to its custody.

RETURNING Wild Horses to the range helps heal the damaged ecosystem. Other countries have come to the realization that Wild Equines fit beautifully into the natural ecosystems and are taking steps to correct decades of land mismanagement. The United States must do the same.

<http://www.gao.gov/products/GAO/RCED-90-110>

## **SPAIN**

Rare Horses Released In Spain As Part Of 'Rewilding' Effort

January 09, 2014

<http://www.npr.org/sections/parallels/2014/01/08/260777584/after-2-000-years-wild-horses-again-roam-western-spain>



Two-dozen Retuerta horses, the second of two batches, are released into the Campanarios de Azaba Biological Reserve in western Spain. The animals' DNA closely resembles that of the ancient wild horses that once roamed this area before the Romans began domesticating them more than 2,000 years ago.

For the first time in two millennia, wild horses are once again galloping free in western Spain, countering what happened when the Romans moved there and domesticated the animals.

Four-dozen Retuerta horses have been released into the wild in western Spain over the past two years as part of a project by [Rewilding Europe](#), a nonprofit group that seeks to turn the loss of rural farming life into an opportunity to boost biodiversity.

The endangered Retuerta is one of the oldest horse breeds in Europe and most closely resembles the race of ancient Iberian horses that populated this region before being domesticated.

Retuertas are nearly extinct, with only about 150 remaining in Doñana National Park in southern Spain. Living in a single cluster there, the entire species could be wiped out by any potential disease or calamity.

So wildlife experts arranged to have two batches of two-dozen Retuertas each brought to the Campanarios de Azaba Biological Reserve, an unfenced area of western Spain that's believed to have once been native territory for the horses.

"Our idea is to just let them manage the ecosystem themselves. It's a wild horse. So it's in its DNA to roam free in the wild," said Diego Benito, a forestry engineer who lives and works at the reserve.

"Of course it is endangered — close to extinction — and we're conservationists," he added. "So if one of them gets ill, we could call the veterinarian. That's not the idea in the future — we'll treat them like wild horses. But for now they could use a little care."

#### A Broader Effort To 'Rewild' Europe

Diego Benito, a forestry engineer who lives and works at the Campanarios de Azaba Biological Reserve. Benito, his wife and new baby are the only full-time residents of the nature reserve. He says he considers his family pioneers, moving to the countryside while most longtime residents are abandoning it. Lauren Frayer/NPR hide caption

Diego Benito, a forestry engineer who lives and works at the Campanarios de Azaba Biological Reserve. Benito, his wife and new baby are the only full-time residents of the nature reserve. He says he considers his family pioneers, moving to the countryside while most longtime residents are abandoning it.

The horse project at Campanarios is one of a half-dozen efforts sponsored by Rewilding Europe across the continent. Others include the rewilding of European bison, red deer, beavers, brown bears and white-tailed eagles in Romania, Poland, Slovakia, Croatia and elsewhere.

"In Europe, we live in a shadow land — in a dim and flattened relic of what there once was, and of what there could be again," said George Monbiot, an environmental columnist for The Guardian newspaper and author of the recent book, *Feral: Searching for Enchantment on the Frontiers of Rewilding*.

"We've lost most of the big predators in Europe," he added. "We've lost all the big herbivores — huge, elephant-sized rhinos used to live in Eastern Europe. We've lost a lot of our middle-sized herbivores. But this can be changed, and I think there's a very exciting future for rewilding here."

Spain is particularly suited to rewilding. The last Ice Age drove many native European species southward, and Spain retains high biodiversity with low human population density.

The Industrial Revolution drew rural human populations to big cities in northern Europe 300 years ago, yet Spain remained a relatively poor, agrarian society until the second half of the 20th century. Since then, the country has seen a massive migration to cities, particularly after the Spanish Civil War in the late 1930s, and now again during Europe's debt crisis.

#### The Landscape Changes

As Spaniards abandon rural life for the city, the land they've left behind is rewilding — returning to a landscape unseen for centuries.

The first thing to come back is the underbrush, which used to be grazed by livestock but now grows unchecked — and fuels increasingly dangerous wildfires growing in number and acreage in recent years.

"In the last 40 years, the bush has increased by more than 4 million hectares. That's nearly 10 percent of the country converted to bushland, because we lost the human population — they went to the city,"

said Benigno Varillas, president of a subsidiary group, Rewilding Spain. "To control the bush, you need big animals — herbivores — to trample and graze. People have taken their horses and cows away. So this reintroduction [of wild horses] is very important."

Varillas tilts his cowboy hat and looks out over empty, overgrown hills that his relatives once farmed. These cork oaks and brush are vulnerable to wildfires. So Varillas and his conservationist colleagues are fighting them — but not with water. They are rewilding the land with its natural protectors — animals.

"If the domesticated herbivores are not anymore, then we need to bring in those who were there before," said Staffan Widstrand, marketing director for Rewilding Europe. "We had domesticated horses here. Well, previously there were wild horses."

The Retuerta horses are one example of the type of rewilding that could take place amid an unprecedented global migration to cities. In 1900, 13 percent of humans lived in urban areas; the United Nations forecasts that number will hit 85 percent in the developed world by 2050. Conservationists are looking at what all of those people leave behind — animals, agriculture and ways of life — and how to preserve it.

Varillas and Widstrand recently helped guide a group of foreign wildlife experts around the Campanarios de Azaba Biological Reserve. Once the group reached the crest of a hill, a ranch hand unlatched a metal gate, and out ran two-dozen Retuerta horses, trampling scrubby oak brush as they galloped down the hill and out over the horizon.

## **EUROPE**

Wild horses could soon return to Europe

<http://sciencenordic.com/wild-horses-could-soon-return-europe>

August 13, 2015 - 06:25

Scientists say we could have wild horse populations running free in just two decades.

By: [Kristian Sjøgren](#)

Repopulating nature with wild horses could benefit endangered animals and plants, say scientists. (Photo: Claudia Feh)

Wild populations of grazing animals have decreased or disappeared entirely across the globe.

This is causing problems in nature where plants and trees now grow wild and uncontrolled because no one is there to keep them in check.

Scientists are now looking at the possibility of rewilding these areas with past populations of big herbivores. Doing so could create safer habitats for endangered species and make the lives of conservationists easier as nature would increasingly be able to take care of itself.

That is why a team of scientists from Aarhus University in Denmark has identified 1.5 million hectares of land in Europe, which is suitable for rewilding. Who should inhabit these lands? Horses, say the scientists.

“It would not only benefit nature but also be economically sound,” says Jens-Christian Svenning, a professor from the institute for bioscience at Aarhus University. “It would allow us to let nature take care of itself instead of spending money on taking care of it because the big herbivores are missing.”

Svenning is behind the new study, which has been published in PLOS One.

Other species will benefit from wild horses

The study receives support from other conservation scientists.

Jonas Geldmann is a postdoc at the Natural History Museum of Denmark where he studies conservation biology and biodiversity. He says it is realistic to reintroduce wild horse populations in nature. Even more, the horses represent a better alternative to buffalos and moose—two species which have also been considered for rewilding purposes.

## **CZECHOSLOVAKIA**

Exmoor ponies gallop to the rescue of unique Czech ecosystem

<http://www.therakyatpost.com/world/2015/02/16/exmoor-ponies-gallop-rescue-unique-czech-ecosystem/>

MILOVICE (Czech Republic), Feb 16, 2015:

Wild ponies vanished from Czech soil thousands of years ago but are now making a comeback thanks to an imported herd that conservationists hope will rescue an unique ecosystem.

The 14 light brown mares chomp on grass in a small enclosure in Milovice, a small town just east of the capital Prague, as they recover from a long journey from Exmoor National Park in England.

The stocky animals with black-and-tan noses, who stand 1.25 metres tall, are one of just a handful of wild horse herds living in Central and Eastern Europe.

Archaeological research shows that groups of wild horses galloped across this part of the continent as far back as 4,700 to 3,700 BC before being domesticated.

“It’s the first time the Czech Republic will use ponies to save an ecosystem — a steppe in this case,” says Dalibor Dostal from the non-profit organisation Ceska krajina (Czech countryside).

Behind him stretches 40ha of plains covered in grass, plants, bushes and small trees — all delicacies for the ponies, who happily snack on leaves and branches.

Miroslav Jirku from the Czech Academy of Sciences is betting that the newcomers will devour the invasive species that are choking rare indigenous specimens of flora and fauna.

“The butterfly and the plant are the indisputable kings and queens of this area,” Jirku told AFP, pointing to the Alcon Blue butterfly and the tiny blue plant Cross Gentian as examples.

Steppe steeped in history

“These precious organisms would disappear and the steppe would turn into a forest if the English ponies hadn’t arrived,” Jirku said.

Various species of birds, reptiles and other animals also risk being driven out of the area should efforts to save the steppe fail, he added.

The ponies’ new home on the plains is a military zone established by the Austro-Hungarian army in 1904.

Milovice housed a prisoner camp during World War I.

The remains of 5,170 Italians, 521 Russians and 51 Serbs are buried at a nearby military cemetery.

The Czechoslovak army took over the zone in 1918 but was expelled by the Nazis in 1939.

German field marshal Erwin Rommel — nicknamed “Desert Fox” for his Africa campaign — trained his Afrikakorps in this sandy area.

After Soviet-led armies occupied Czechoslovakia in 1968, the zone was transformed into a giant Soviet garrison.

The last Soviet soldier left in 1991, two years after the Velvet Revolution ended communism in Czechoslovakia, which then split into the Czech Republic and Slovakia in 1993.

Natural habitat

The regular army still exercises on the land, their movements helping to preserve the natural features of the steppe by quashing less robust alien species.

“In a way, the activities of the army resembled those of the wild bison, bovidae and horses of the past,” Dostal said with a smirk.

The Exmoor pony, which has always lived in the wild, was chosen for the programme because of its size and pelt, which researchers say are closest to those of the wild horses that used to inhabit the area.

Dostal said the Czech steppe was similar to the ponies’ natural habitat 1,500km away in southwest England.

“I’ve been here four or five times and I don’t think there’s any problems, hopefully they’ll go on and breed and do well,” said Richard Caley, the English driver of the truck that brought the ponies to Milovice.

“The Exmoor kind are a little bit endangered so... they’re moving them away from England and they’re bringing them here, making up a new breeding programme. Which is good,” he told AFP.

Co-financed by the European Union, the project is managed by Ceska krajina in conjunction with the Czech Academy of Sciences, European Wildlife and several Czech universities.

The herd is expected to grow by dozens of animals after a stud stallion arrives this spring.

## **MONGOLIA**

### **BACK FROM THE BRINK**

Nearly extinct, the world's first horse, as pictured on pre-historic cave murals, is running free once more in the great Mongolian steppes. The rescue of the Przewalski horse is a remarkable tale.

By Ron Gluckman / Mongolia

[http://www.dailymail.co.uk/travel/travel\\_news/article-3165570/The-wild-horses-Mongolia-Stunning-photographs-glorious-return-Przewalski-s-mares-effort-save-species.html](http://www.dailymail.co.uk/travel/travel_news/article-3165570/The-wild-horses-Mongolia-Stunning-photographs-glorious-return-Przewalski-s-mares-effort-save-species.html)

The Takhi certainly appeared more at home on the range than in the world's zoos, where they have languished for decades. Watching them run free, I felt the same admiration as the ancients, who detailed the Takhi in countless pre-historic cave pictures.

However, scientists and naturalists are more concerned about the behavioral uniqueness of the Takhi. Protecting this quality makes the reintroduction of the horse into the wild all the more essential.

Discussed for decades, reintroduction efforts gained speed when Mongolia began distancing itself from the Soviet Union, its patron state for the past 70 years. Several projects were presented to the Mongolian government amidst the chaos as the country shifted from socialism to democracy. While there is an obvious air of acrimony among different reintroduction groups, consensus centers both on the need to return the horse to Mongolia and prospects for success.

"I'm very optimistic," says Oliver Ryder, geneticist of the Zoological Society of San Diego, and secretariat of the Global Management Plan for the Przewalski Horse. "In the long history of reintroduction, there have been more failures than successes. This is a good opportunity to bring something back."

Ryder says an unusual asset is the vast amount of undeveloped land in Mongolia. This provides an opportunity to protect not only the rare horse, but also the complete ecosystem that once sustained it.

However, controversy continues to stir the scientific community on the right site and method of reintroduction. The debate began long before the Dutch-based Foundation for the Preservation of the Przewalski Horse began its unusual airlift.

Machteld van Dierendonck, a Foundation volunteer in Mongolia, says the project started 20 years ago. Animals were acquired in the 1970s, and selectively bred towards the truest characteristics of the Takhi. Large reserves were established so the animals could live with a minimum of human contact.

"The goal was always reintroduction," she says. "To prepare them, we decided upon a gradual program to give them a chance to adapt. The ones we moved are second generation. Their mothers lived all their lives in the nature reserves, and the babies were born there."

A similar pattern of reintroduction is underway in Mongolia. The Foundation searched for a site for five years before settling on 50,000 hectares of rolling hills about 85 kilometers west of the Mongolian capital of Ulan Bator. The group fenced three acclimation areas, each 70-80 hectares. The horses will stay in the enclosures for a year, completing another birth cycle.

After one group is released into the wild, another will be moved to Mongolia. Each group includes a varied amount of mares and foals, with stallions and mares mixed from the Ukraine and Holland herds.

"By the year 2,000, we expect to have 80 animals returned to Mongolia and (with births) a total of 250 horses in the wild," says van Dierendonck. "I think that's realistic."

However, Ryder and other scientists worry that the site was poorly chosen. The main criticism stems from proximity to settlements in the area. While Mongolia is sparsely populated, Ryder says the animals may still encounter herders and could well interact with local horse herds, threatening already precarious genetic purity.

The Foundation has hired local workers to patrol the preserve, pushing back the Talkhi that roam too far. Ryder counters, "The real goal is to put the horses in a population-free area, not behind fences, and unfettered by human contact."

Ryder's group prefers a preserve in the Gobi area, despite the lack of grazing ground and water, and tremendous climate variations. "It's not the most optimal site," he admits. "But the goal of reintroduction is to restore and preserve an ecosystem. The Gobi is one of the most valuable areas on Earth. It's virtually untouched."

Planning has ongoing for over a decade, but efforts picked up pace as reintroduction turned into a horse race between different groups. "We've revised our time frame quite a bit," Ryder admits. "Mongolia wanted things done in a hurry. Mongolians seem a bit bewildered by all the effort now, and so much time for study."

Indeed, the minister of Mongolia's new environmental protection department, Batjargal, expresses dismay at all the delays. "We have been talking about this since 1975. Things got realistic in 1981. But it took so many years, so much planning."

Part of the problem is financing. Ryder estimates a cost of US\$15,000 to transport each horse from western reserves to the Gobi desert. While international organizations may be able to raise these sums, the salaries of park personnel and upkeep will fall to the Mongolian government, which is virtually bankrupt.

Still, there is undeniable enthusiasm among Mongols for the effort. "The Mongolian people want the wild horses to come back," Batjargal says. "Mongolians like horses, but this is more important. This is a science project for the whole world."

Yet there remain numerous obstacles on the Mongolian side, not the least of which involve a Soviet-inspired thicket of bureaucracy. My visit took weeks to organize. Then, after a long journey, we were turned away by the reserve manager, who insisted he was sole overseer of the wild horses. My accompanying employee of the state nature ministry offered no assistance at this stage, but demanded a "donation" afterwards for the privilege of viewing the horses, as if they were circus animals on show to the highest bidder.

Such haphazard approaches to conservation have hampered previous Mongolian exchanges with western environmental organizations. However, Jeffery Griffith, an American environmental specialist from Yale, who spent the summer advising Mongolians on park design and preservation, notes that the nomads have a historical affinity with nature. The country has the world's oldest wildlife park, in fact.

"Their commitment to protection is really quite advanced," he says, "Certainly much better than when the United States started its park development a hundred years ago.

"They really have the chance to do it right the first time."

And, with the Takhi, Mongolians have an odds-on emotional and ecological favorite.

"We see more and more large, charismatic creatures disappearing around us," Ryder says. "And the great ones, like the elephants, are herded into fenced areas. This is a nice opportunity to do something in contrast, to preserve something grand from the wilderness, like the Gobi itself.

"This is a commitment of humankind globally to our environmental future. It's emotional and symbolic, but the importance is very real, to show that humans care. There are always people who will say, it's just a horse. But the future will thank us for what we saved."

## **ENGLAND**

The Konik stallions are having a bit of a dust-up in the distance, but the Highland cattle keep their heads down in the grass, ignoring the flying hooves. Around nine species of bird can be seen feasting on the hawthorn flies and tiny fish rising to the top of the sparkling lode.

This is Wicken Fen, a 760-hectare haven surrounded by Cambridgeshire farmland, which could become much bigger: the National Trust's ambitious 100-year plan for the marshland site is to expand to 5,300 hectares. The site has already doubled in size since the start, in 1999, of a project to reclaim ploughed and drained farmland and let it revert to fen.

The reintroduced species are herds of feral cattle and wild horses, rather than the more eye-catching [wolves and bears being suggested for other parts of the UK](#), but Wicken Fen is still among the most ambitious of the UK's "rewilding" projects.

“The idea is not to preserve the landscape in aspic,” said its countryside manager, Martin Lester, “but to create an ecology that is dynamic and changing and will build up natural resources to cope with things like climate change. It’s called rewilding but it’s not wilderness; it’s more like rewilding.”

## **HORSES: MAJESTIC ANIMALS HELPING OUR ENVIRONMENT**

<http://www.isfoundation.com/news/youth/horses-majestic-animals-helping-our-environment>

How many people know that horses running free in our world help the environment they live in? Probably not many. Most people probably see these beautiful creatures as companions, workers or athletes, but not as important guardians of our planet. The majority of the UK's wild horses are semi-feral, which means they have owners but roam free as if they were wild. The only non-owned wild horses are ponies that live in very remote areas of Scotland and the mountains in Wales. The ponies represent a number of the UK's best-known native breeds, such as the Welsh Mountain, Exmoor, and the Dartmoor. All of the wild horses living in the UK play an important role in maintaining their habitat and helping biodiversity flourish. When horses graze for food they don't just eat everything in their path, they pick and choose. Also, different breeds have different eating habits. The uneven eating habits of the horses mean that vegetation of different heights is created. Wild horses are continually on the move, stepping on unwanted growths of vegetation that would otherwise overtake other plants so they can't thrive. Horses aren't fond of eating flowers either, giving rare wild flowers a chance flourish. As a result, the wild horses keep the land from unwanted overgrowth and provide ideal habitats for birds and other small animals to live. Loch of Strathbeg, a nature reserve in Scotland, has recently released a herd of konik horses onto its wetland. Koniks are descendants of a European wild horse that became extinct in the late 1800s. The koniks were chosen because they are extremely hardy and eat the vegetation that the reserve previously had to maintain using machinery. The reserve now feels that with the land under better control a variety of birds will have the habitats they need to thrive. The horses came from the Wildwood Trust, which is working on a number of horse grazing projects for nature reserves in Britain. Check the Loch of Strathbeg website to learn more about the wildlife that can thrive there because of the horses. Konik horses have also been released to help biodiversity in the South Foreland Valley nature reserve on the southeast coast of England near Dover. The horses graze the land, which keeps local species of plants and animals protected. Take a look at these cute little guys here: Wild Horses Released Near Kent Coast In Italy, the Foce Isonzo Natural Reserve has used French Camargue horses since 1991 to keep the park's environmental balance. Since the horses arrived the variety and health of the reserve's plants and animals, in particular its birds, has flourished. In North America, wild horses help the environment too. When a horse eats, it does not breakdown any seeds that enter its system, so when it comes back out again the seeds germinate. Because wild horses roam over quite large areas, seeds get spread over a greater distance, keeping the plants thriving, which helps ensure that the other animals sharing the habitat have enough to eat. If animals that eat plants are plentiful, then animals that eat meat will also have enough to eat. The wild horses also play a very important role in the winter when water sources freeze. Horses have strong hooves that can break through ice to make the water available. Animals that can't break the ice can then drink. Without the horses to help them they would not survive. Horses provide one of the most valuable contributions to the biodiversity and health of the land where they live. They have an interconnection with man that goes back thousands of years.

Congress states in the Wild Free Roaming Horse and Burro Act of 1971 "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." Wild horses, wherever they roam, are nature's healers. They are vital to the environment. If they were to no longer roam free, conservation efforts would be seriously impacted with the possible loss of threatened animals and plants. Here are some more cool videos about horses helping the environment

## CHINA

### LETTING NATURE HEAL ITSELF

"Letting nature heal itself" – the following is a story about how China has learned from history and moves forward. China is fast shaking off its "Feudal" past and moving into the 21<sup>st</sup> century. Having learned some hard lessons from centuries of exploitation, the Chinese People are, once again, displaying the tremendous wisdom that so exemplifies their culture. I think we can learn from them.

#### Jiang Gaoming

The ecosystems destroyed by the deadly earthquake in May formed over the course of millennia. But their natural recovery will take only decades, writes ecologist Jiang Gaoming.

The May 12 earthquake in Wenchuan killed more than 69,000 people. The tremors also caused landslides, uprooted vegetation and destroyed natural ecosystems. The government not only has to rebuild homes, but also repair damaged ecosystems.

Plant populations develop in one of two types of **succession** (the process by which ecosystems develop and change over time), those of dry or moist environments. These types of succession both create soil through physical, chemical and biological processes, before diversifying and ultimately forming a robust ecosystem. But this takes time: it can take two millennia or more to create a centimetre of soil. The ecosystems in the quake-hit area of Sichuan date from ancient times, and are the result of **xerarch**, or dry, succession. But ecosystems – like biological organisms – can adapt to their environments and help themselves. Even after an earthquake, as long as there are seeds, roots and soil, an ecosystem can quickly restore itself. And these secondary successions require decades, rather than millennia. All it requires is "enclosure", which keeps the soil secure, while seeds and spores take root. Nature can heal itself.

On September 21, 1999, over 2,000 lives were lost to the 7.3 magnitude Chichi earthquake in Taiwan. By November 2001, areas with thick soil around the base of the hills were already covered by grass and bushes. Trees were starting to appear and plants were growing from crevices in the rocks. The local government had decided to let nature take its course. Some badly damaged buildings were even left as a memorial and a museum was constructed as a centre for research and education.

There are many other examples of damaged ecosystems healing naturally. Forty-five years ago in Hong Kong, agricultural activity stopped on a hillside farm and a luxuriant forest grew in its place. This is now [Kadoorie Farm and Botanic Garden](#). At the turn of the twentieth century a town in Shaanxi province was home to 10,000 people and a major producer of food steamers made from local wood. But transportation problems meant the town was abandoned and the trees grew back naturally until forests covered the entire area. It is now part of the Foping Nature Reserve, where trees grow to a half-metre in diameter and pandas feast on the abundant bamboo. After an area in the Taixing Mountains, Shanxi province, was enclosed for five years, natural vegetation recovered, at 5.8% of the cost of creating an artificial forest. Enclosure creates mixed forests of grass, bushes and trees that are able to better absorb water, prevent soil loss, improve the local climate, reduce the risk of flooding and landslides and protect biodiversity.

For the last eight years, my research group has been studying the recovery of a damaged ecosystem in on the edge of the desert in Inner Mongolia. An area of 40,000 *mu* (around 27 kilometres) of sandy grasslands have now been restored to its condition in the 1960s. As the vegetation recovered, wild animals returned. Surrounding areas followed suit and the sand dunes are now covered with a healthy layer of vegetation. Earlier this month a group of Al-Jazeera reporters visited the site to find an example of a damaged ecosystem, but they spent the whole day driving and could not find one. In the end they had to use a small sand dune as a background. We tried planting trees and aerial seeding, but ultimately gave up. Instead we worked on changing the habits of local herders, improving land productivity and providing more employment opportunities – leaving nature to take care of the ecosystem.

Restoring the quake-hit ecosystems is a question of balancing the interests of the local people and the environment. Rural methane projects can reduce the number of locals taking firewood from the mountainsides. The use of straw as fodder will reduce the use of land for grazing and ensure that vegetation can grow. In Sihai township and Dazhuangke village, in Beijing, they now have forestry coverage of 85% or more, compared to the 30% they had 15 years ago. Back then, land was used very inefficiently: one person would use 20 *mu* of forest just for firewood. With those pressures on the ecosystem, no amount of spending on reforestation will succeed. Then the government opted to relocate the population and pay those who remained to tend the forest and provide coal. This reduced the pressures on the ecosystem and it was able to recover naturally.

When an ecosystem has not been pushed past certain limits, it is able to recover on its own. Human intervention should only be supplementary, including after an earthquake. This is particularly the case for sandy grasslands, grasslands, deserts, the mountains of the south and the northern sides of mountains in the north. In these areas soil remains and the water, light, heat and nutrients needed are available. It is even more appropriate in sparsely-populated areas, where it can avoid money being wasted on ineffective manual efforts, such as creating forests in arid areas.

The creation of nature reserves should be model to allow damaged ecosystems to recover. Funding can start at the national level; centrally-funded nature reserves can enforce environmental protection laws and spur the local economy. This will solve the problems of reserves being run commercially. When national reserves are funded, local governments will be able to adopt the same model and provide the

funds for nature reserves from their own budgets. The first projects should be established in nature reserves hit by the quake; these can then become models for other areas.

*Jiang Gaoming is a professor and Ph.D. tutor at the Chinese Academy of Sciences' Institute of Botany. He is also vice secretary-general of the UNESCO China-MAB (Man and the Biosphere) Committee and a member of the UNESCO MAB Urban Group. He is known for his concepts of "urban vegetation" and allowing damaged ecosystems to recover naturally.*

### **PROTECT WILD HORSE HERD BEHAVIOR**

I request that the management of the Pine Nut HMA and Wild Horses be guided by science. We need to know more about Wild Horse behavior and herd dynamics. We need to understand how herd behavior impacts every aspect of their life on the range, including population control, such as that being conducted by ISPMB.

### **Princeton University Teams up with ISPMB to Study Equine Behaviors**

International Society for the Protection of Mustangs and Burros, the oldest wild horse and burro group in the United States. Velma Johnston (Wild Horse Annie) was its first president.

<http://www.ispmb.org/>

ISPMB HERDS SHOW THAT FUNCTIONAL SOCIAL STRUCTURES CONTRIBUTE TO LOW HERD GROWTH COMPARED TO BLM MANAGED HERDS

*As we complete our thirteenth year in studying the White Sands and Gila herds, two isolated herds, which live in similar habitat but represent two different horse cultures, have demonstrated much lower reproductive rates than BLM managed herds. Maintaining the “herd integrity” with a hands off management strategy (“minimal feasible management”) and no removals in 13 years has shown us that functional herds demonstrating strong social bonds and leadership of elder animals is key to the behavioral management of population growth.*

*ISPMB’s president, Karen Sussman, who has monitored and studied ISPMB’s four wild herds all these years explains, “We would ascertain from our data that due to BLM’s constant roundups causing the continual disruption of the very intricate social structures of the harem bands has allowed younger stallions to take over losing the mentorship of the older wiser stallions.*

*In simplistic terms Sussman makes the analogy that over time Harvard professors (elder wiser stallions) have been replaced by errant teenagers (younger bachelor stallions). We know that generally teenagers do not make good parents because they are children themselves.*

*Sussman’s observations of her two stable herds show that there is tremendous respect commanded amongst the harems. Bachelor stallions learn that respect from their natal harems. Bachelors usually don’t take their own harems until they are ten years of age. Sussman has observed that stallions mature emotionally at much slower rates than mares and at age ten they appear ready to assume the awesome responsibility of becoming a harem stallion.*

*Also observed in these herds is the length of time that fillies remain with their natal bands. The fillies leave when they are bred by an outside stallion at the age of four or five years. Often as first time mothers, they do quite well with their foals but foal mortality is higher than with seasoned mothers.*

## **INCREASE AMLs TO REFLECT ACCURATE POPULATION GROWTH RATES**

Please review and include the following analysis in your Pine Nut Herd Management Plan

Current management approach of removals is fueling high population growth rates.

A recent independent study was performed that systematically proved that BLM’s “20 percent” annual wild horse population increase estimates are inaccurate fabrications and the actual annual herd increase is ten percent and actually lower once adult mortality is factored.

Provided below is a research study:

### **WILD HORSE POPULATION GROWTH**

Research Collaboration by

Kathleen Gregg Environmental Researcher

Lisa LeBlanc Environmental Researcher



Above Photo) Wild Horses on Legally Designated HMA Public Land

## INTRODUCTION

The recent National Academy of Science (NAS) report on the Wild Horse and Burro Program determined that the Bureau of Land Management (BLM) has no evidence of excess wild horses and burros; because the BLM has failed to use scientifically sound methods to estimate the populations (NAS, 2013). The NAS cited two chief criticisms of the Wild Horse and Burro Program: unsubstantiated population estimates in herd management areas (HMA), and management decisions that are not based in science (NAS, 2013).

Effective wild horse and burro management is dependent on accurate population counts and defensible assumptions. The Bureau of Land Management (BLM) routinely uses the assumption that wild horse and burro herds increase annually at an average rate of 20%. However, our review of available scientific literature combined with an analysis of BLM data for 5,859 wild horses found that only approximately 50% of the foals born survived to the age of 1 year, which indicates a 10% population growth rate based on yearling survival rates.

## METHODS AND DATA

The data and analysis is based on the BLM's wild horse and burro removal and processing documents acquired under the Freedom of Information Act. The data sets were evaluated separately, and then combined to total 5,859 wild horses, captured, aged, and branded by BLM. This data is the basis for the analysis in this report and the accompanying chart in table 1 below.

Burro data was also calculated for foal and yearling survival. That data indicated only a 7% population growth rate for burros based on yearling survival, but that data is not included here, but is available, as burros are not present in all of the HMAs.

The data was collected from 4 herds captured by BLM in Nevada and California in 2010 and 2011. The data below in table 1 shows the individual herds and accumulated age structure data which supports the overall conclusion. Wild horse foals and yearlings were tallied for population increases and in all four samples, recorded a combined foaling rate of less than 20%, but only half or 50% of those foals survived to the age of 1 year (see table 1 below).

Table 1 Age Structure Yearling Survival Rate

Herd Area	ROUNDUP DATE	HORSES PROCESSED PER FOIA	TOTAL FOALS CAPTURED	% OF FOALS	TOTAL YEARLINGS CAPTURED	% OF YEARLINGS	SURVIVAL RATE OF FOALS REACHING ONE YEAR
Calico	Dec 2009-Jan 2010	1848	378	0.2045	248	0.1342	0.6561
Twin Peaks	Aug-Sept 2010	1535	302	0.1967	147	0.0958	0.4868
Triple B	Jul-Aug 2011	1226	243	0.1982	134	0.1093	0.5514
High Rock/Fox Hog	Oct-Nov 2011	1250	245	0.1960	81	0.0648	0.3306
Totals		5859	1168	0.7955	610	0.4041	2.0249
Averages				0.1989		0.1010	0.5062
				average herd increase using foal rate		average herd increase using yearling rate	average yearling survival rate

DISCUSSION

This research does not include or reflect the additional adult mortality rates due to the complexity of population dynamics, but does raise serious questions about the validity of the BLM’s assumed 20% annual herd population growth rate. Furthermore, the BLMs assumption fails to consider that wild horse populations are dynamic due to isolation and have varied rates of reproduction and survival due to changing climates, forage, competition, disturbance and environmental conditions. All these are factors that can lead to varied herd growth rates and each herd should be evaluated separately.

This research paper is supported by previous studies using age structure data completed by Michael L. Wolfe, Jr. in 1980 titled “Feral Horse Demography: A Preliminary Report”. Mr. Wolfe cited observations in 12 HMAs, over a period of 2 to 5 years, and covered a much broader range over six Western states. He questioned the annual rate increase of 20%, and found that first-year survival rates to range between 50% and 70% (Wolfe, 1980).

Other supporting research includes The National Academy of Science National Wild and Free-Roaming Horse and Burro report of 1982, which states, “...several biases in the (BLM) census data, cited or calculated rates of increase based on a number of published values for reproduction and survival rates, as well as sex and age ratios, and concluded annual rates of increase of ten percent or less” (NAS, 1982).

The NAS 2013 report also used age structure data to estimate population growth. However, the report used foaling rates to draw conclusions about the population growth; rather than first year survival rates (NAS, pg.51-52 2013). This and other studies challenge the assumption that the 20% foaling rate provides an adequate measure of population growth.

The BLM bases their management decisions on environmental assessments that cite inflated population estimates. As shown in this study and previous research, the BLM's assumption of a 20% annual wild horse population growth rate is not based in science; leading to unsubstantiated population estimates with **no evidence of excess wild horses**.

#### REFERENCES

National Academy of Science 2013, "Using Science to Improve the BLM Wild Horse and Burro Program – A Way Forward"

[http://www.nap.edu/openbook.php?record\\_id=13511&page=R1](http://www.nap.edu/openbook.php?record_id=13511&page=R1)

Johnston, J. (2011). California's, Wild Horses and Burros: Twin Peaks HMA.

[http://csusdspace.calstate.edu/xmlui/bitstream/handle/10211.9/1492/WHB\\_Thesis\\_Final%201.30.11.pdf?sequence=1](http://csusdspace.calstate.edu/xmlui/bitstream/handle/10211.9/1492/WHB_Thesis_Final%201.30.11.pdf?sequence=1)

"Feral Horse Demography: A Preliminary Report", Michael L. Wolfe, Jr.

<http://www.jstor.org/discover/10.2307/3897882?uid=3739560&uid=2&uid=4&uid=3739256&sid=21103688884451>

National Academy of Science 1982, "Wild and Free-Roaming Horses and Burros"

<http://books.google.com/books?id=Q2lrAAAAYAAJ&printsec=frontcover#v=onepage&q&f=false>

U.S. Department of the Interior, Bureau of Land Management Freedom Of Information Act (2012). FOIA BLM FY12-011 1278.

U.S. Department of the Interior, Bureau of Land Management Freedom Of Information Act (2012). FOIA BLM-2012-00934.

U.S. Department of the Interior, Bureau of Land Management Freedom Of Information Act (2012). FOIA BLM 2012-01046.

U.S. Department of the Interior, Bureau of Land Management Freedom Of Information Act (2012). FOIA BLM 2012-00250.

Appropriate Management Levels lack scientific basis, transparency and equity.

**INCREASE AMLs**

Accommodate current Wild Horse population levels through reduction in livestock grazing pursuant to 43 C.F.R. 4710.5(a) while undertaking land use processes necessary to increase “Appropriate” Management Levels in the HMA.

This is well within BLM’s authority to do so.

As required by NEPA, it is the law that *all relevant scientific information be provided to the American public and that that information be taken a “hard look” at by the decision makers*

As stated in the recently completed NAS Wild Horse and Burro study: *Data and methods used to inform decisions should be scientifically defensible, and the public should be able to understand the methods used and how they are implemented and to access the data used to make decisions.*

<http://dels.nas.edu/resources/static-assets/materials-based-on-reports/reports-in-brief/wild-horses-report-brief-final.pdf>

[http://www.blm.gov/nv/st/en/prog/wh\\_b/appropriate\\_management.html](http://www.blm.gov/nv/st/en/prog/wh_b/appropriate_management.html)

The BLM has been given a very great responsibility to manage and protect America’s Public Lands, Wildlife and natural resources. Our Wild Horses and Burros are very much a part of that. We should not be forced to reintroduce Wild Equines back into the wild when removals can and should be avoided. The real management needed is that of the range land and the conflict surrounding its use. Private and corporate interests have no place in these most important decisions. The stakes are too high. The last of our truly wild environment is something that cannot be replaced. We cannot afford to see it destroyed. Please take your responsibility seriously. Future generations will either blame you or thank you for the decisions and actions that you take.

Thank you for considering my comments

██████████  
██



CCDO\_PineNutHorses, BLM\_NV <blm\_nv\_ccdo\_pinenuthorses@blm.gov>

## Fwd: Pine Nut Herd Evaluation data

2 messages

Thu, Oct 22, 2015 at 6:41 AM

To: BLM\_NV CCDO\_PineNutHorses <pinenuthorses@blm.gov>, [REDACTED]

----- Forwarded message -----

From: <[REDACTED]>  
 Date: Wed, Oct 21, 2015 at 8:31 PM  
 Subject: Pine Nut Herd Evaluation data  
 To: [REDACTED]

Please note for the record that the attached photographs were taken on October 16 and 20 2015.

In regards to the draft Pine Nut draft evaluation I would like to point out the following:

The report in general negatively portrays wild horses in the Pine Nuts. This is systemic through out the evaluation.

Note the following:

1. Page 5 paragraph 3, "Vegetation is typical of the western Great Basin and is dominated by needlegrasses, Indian ricegrass, squirreltail, sagebrush, rabbitbrush, bitterbrush & pinyon-juniper. Dominate is a strong word suggesting that grass cover is more extensive when this is not the case, as rainfall amounts do not support an extensive grass cover in this area.
2. Page 6 bullet#5 refers to the FEIS outline for desired habitat conditions for Bi-State Sage grouse proposing that AML levels within this habitat be adjusted according to habitat. This must not happen as horses and grouse evolved together and it has been previously noted that horses are not the main causal agent of waning grouse populations. The Pine Nuts historically never supported a large population of grouse.
3. Table 4 page 11: El Dorado Canyon shows an increase from 2008 168 AUIMS to 2012 1,248. Is there supporting data as the increase in 4 years is much higher than any other allotment area.
4. In reference to Vegetative Trends there is no mention of 4 years of drought as a causal agent in the downward trending areas.  
 Again this shows bias against the wild horse population.
5. Page 22 "Perennial grass cover was lower than expected" Again this is the 4th year of a drought and in areas of the Pine Nuts where there are no wild horses the same is true. Areas which had cover such as the old Como burn appear to have good forage and plant vitality. Wild horses observed there were within the 5-6 range on the Henneke scale. 18 horses seen between Como and Sunrise Pass areas.  
 Clifton allotment area above Hazlett Spring, 3 bands noted. 2 bands were in the 5-6 range, the 3rd band of 6 horses had 3 which were lower in the 4 range on the Henneke Scale. Henneke condition scores do not correlate with a depleted range and should be taken into consideration in the draft evaluation. Grasses were noted, that were grazed on however were alive and some new growth noted after the rains.
6. Regarding Riparian Functional Assessments by allotments the following observations were noted on October 20, 2015.

1. Hazelett Spring has been improved by the mining company backhoe operator who dug out and bermed the spring.
2. Pine Spring is flowing and does not have many willows but is providing a water source.
3. West Barton Spring had 3 pools ( one outside of the downed fence. Wild horses had eaten grasses within the enclosure however is was not barren, just grazed down.
4. Hercules Spring: Fenced area had plant and grass cover which is to be expected if grazing animals cannot access. There is however water flowing off of the fenced enclosure. There appears to be an old piping system running under the road into the area just below. BLM should work on the development of a catch basin below road grade which will eliminate the sloughing just below the fenced enclosure and will provide more water for wildlife.
6. Unknown spring name on hillside across from Dayton Ranchos BLM is flowing but can be enhanced with some excavation and rocking.
7. Stock pond noted past Como burn. Appeared functioning with use by horses and deer. ( No mention of this in draft evaluation).
8. Spring near Como mine: had good grass cover and willows. Evidence of moderate horse, deer and mountain lion or bobcat tracks.  
This can also be enhanced. Not included in draft evaluation
9. Stock tank on sunrise pass road is full with open access for horses. Flow appears to come from fenced area above.
10. Numerous wet areas observed between Como and Sunrise Pass areas
11. Poor flow seep noted on hillside below the spring noted under item 6.

7. Page 25. "80 percent have a downward trend due to excessive grazing and hoof action impacting riparian areas". Only one mention of climate change was mentioned as a specific cause at the very end of the RFA. Pictures submitted showing previous years were pre-drought and years of high precipitation totals.

8. Fencing was prevalent within the Como and Sunrise areas. Evidence of new fencing noted at Sunrise. P & J treatments noted at Como and towards Sunrise. Some with burn piles, others were lopped and scattered. No sage grouse were noted at any time of the tours.

Conclusion notes that wild horses need to be brought to low AML with additional management actions to be considered for an indefinite period of time.. Please define what the additional management actions are as there is no following explanation. Very little was mentioned in regards to fertility control with natural attrition.

Included are photos taken on 10/16 & 10/20/2015 submitted as data. Photos are tagged with the description. I would like to recommend that until such time that the horses are showing signs of stress in lower body condition scores, that horses should not be rounded up to the low AML figure of 119. A greater factor should be given to drought and the El Nino factor coming up this winter and spring. The draft evaluation front page was a negative portrayal of range condition. At West Barton Spring, 3 bands came in to drink within a 20 minute time period. No horses stayed at the spring longer than 10 minutes. If BLM works on improving springs within the HMA this can alleviate the areas where refill is slow.

Thank you





19 attachments



**como1.jpg**  
148K



**comominevegetation.jpg**  
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**comominespring.jpg**  
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**comomineohvtracs.jpg**  
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**comominegrasses2.jpg**  
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CCDO\_PineNutHorses, BLM\_NV <blm\_nv\_ccdo\_pinenuthorses@blm.gov>

Thu, Oct 22, 2015 at 8:13 AM

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**19 attachments**



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CCDO\_PineNutHorses, BLM\_NV &lt;blm\_nv\_ccdo\_pinenuthorses@blm.gov&gt;

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## Pine Nut Mountains Herd Management Area Draft Evaluation

1 message

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Sun, Sep 13, 2015 at 9:55 AM

To: pinenuthorses@blm.gov

[REDACTED] The period of consideration is not long enough for proper evaluation of this report (end date Sept 22, 2015). I am someone who has expertise regarding these matters and research them, especially as pertains to the Pine Nut. Certainly the general public requires even more time than myself. I request a public extension of time.

[REDACTED]

# **Pine Nut Herd Management Area: Draft HMA Evaluation: Wild Horse Preservation League Response**



Prepared by [Redacted]

## **Part I:**

**BLM Cover photo: Something is out of kilter, and oh look, “It’s the horses again!” This is the theme of Bureau of Land Management’s document. As always this means it’s time for a helicopter roundup! BLM thinks that roundups = management. The American Academy of Sciences has found the strategy of roundups to be utter failure, and roundups by any name are just plain mean. In the Pine Nut HMA it is a waste of taxpayers money!**

**The Wild Horse Preservation League (WHPL) based out of Dayton, Nevada,** works with other local horse advocacy groups and the Bureau of Land Management to monitor situations on the Pine Nut Horse Management Area, seeking improvements to both the environment and wild horse management. We are citizen volunteers and presently some of our members are active volunteers for John Axtell, BLM Carson City District, Sierra Front Field Office. WHPL is a member of the American Wild Horse Preservation Campaign, a coalition of 60 wild horse advocate organizations. The Pine Nut HMA is in our backyard.

**Evaluation:** The Pine Nut is a designated wild horse management area. HMAs are shrinking or being closed out across the West. This is a clear indication BLM just wants to get out of the horse business. There will always be too many as long as there is less land and fewer resources! BLM has huge non-HMA areas and does not need to try and force all of the multiple use strategies into this small one. Not

mentioned in this Pine Nut HMA report is mining, long a presence here, but mining activities are really picking up, especially in the area in the springs mentioned. This small HMA, with a small wild horse population, receives some of the best and most consistent precipitation levels in Nevada. There is **no excuse** for not managing the wild horse population on the Pine Nut.

**Setting:** U.S. food laws require listing ingredients on a carton of ice cream, that the first item is the most abundant, the last is correspondingly the least. BLM has completely skewed reality in describing the setting of the Pine Nut HMA as a grassland with Indian Ricegrass as the main ingredient. This is essentially just not true.

The Pine Nut HMA has a predominantly rocky landscape, mostly dense, heavy volcanic rock, though some areas include metamorphic rock and granite. BLM has great difficulty in maintaining roads, especially in the areas of the illustrated springs. In the past, BLM has left road improvement up to private mining interests. The main road beyond Dayton Valley Road into the Pine Nut HMA is presently receiving the long desired improvement, courtesy of Iconic of Canada. The plant community is predominately sage and other perennial brush with pinyon and juniper at higher elevations. Grasses and “pretty” forbs are embellishments. The Pine Nut HMA is NOT a grassland. Interesting, [Grasslands of the World - MBGnet](#) states that brush lands should not be grazed by cattle or sheep, but by “horses, camels or goats.”

**Land Use Plan Objectives:** WHB-1 The objective was to remove horses. There is no clear order of desired outcomes, there are numbers missing, but the first WHB-2 suggests horses would then be allowed to reproduce.

The second WHB-2 claims a desired outcome was to maintain and improve habitat, including riparian/stream habitats. BLM was apparently relying solely on the removal of horses to improve these habitats. We believe proactive physical management of these habitats is sometimes required in drought years. We will later comment in depth on a few springs we are most familiar with, showing the problems with them do not relate to the horses, but motorized vehicles and BLM’s failure to maintain and improve these locations. Good spring photos supplied are from years with plentiful precipitation and illustrate no trends.

Wild horse advocates are waiting for the report on dramatically improved conditions for sage grouse in the Buckskin Hills of the Pine Nut. No proper argument can be made regarding improvements for the sake of these pleistocene surviving animals, for which a complete horse removal was made in 2010.

## **Section II. HMA History**

AML formulas are not properly configured (AAS), nor are AUM. Large amounts of land has been removed from dedicated HMAs, and the BLM is continuing to close out HMAs. BLM's estimate of wild horse populations remain the same following helicopter removals, year after year.

In 2010 the BLM tried a new strategy in managing the wild horse population of the Pine Nut HMA. Birth control was utilized, horses were "gathered," albeit by helicopter, and most were released after mares were inoculated. WHPL documented that and associated roundups. In 2010, all horses in the Buckskin Hills area were removed for the alleged purpose of enhancing sage grouse habitat.

The birth control experiment was a tremendous success. Unfortunately there was no timely followup. John Axtell, of the Carson City office, asked wild horse advocates if the horses were not reproducing because of the percentage of older mares on the HMA. He also said he heard there was a high rate of foal loss. We guess the birth control lasted longer than he assumed it would. If birth control had been administered to the older mares and immature females in the field in 2012, there would be fewer and even healthier horses on the Pine Nut today. But that did not happen.

The Pine Nut HMA is home to a healthy population of mountain lions, an important keystone species for ecological balance of plants as well as animals. The undocumented loss of foals John mentioned could be attributed to mountain lion predation.

The lions have a well documented presence in the Pine Nuts (not by BLM), and according to a recent University of Nevada PhD dissertation, horses are the second most preferred kill there. (see Alyson Andreasen)<sup>1</sup>

Some additional notes regarding removals in **Table 1: 2011, 2012 and 2013** removals of "aggressive stallions" in the Carson City. One fully mature pony-sized stallion about 11 hands high, popular with the public, was removed in 2012. Five of

his colts, each 12 months old at the time of their removal, and representing three foal crops were removed. One two-year old immature stallion was removed from Carson in 2013.

Horses are considered to be mature around 5 years of age, it's seems odd to call pony-sized yearlings, stallions. All horses in the Carson City area were fully documented by the Wild Horse Preservation League with data given to John Axtell over time. Several times WHPL urged that these horses be field birth controlled, but they never were. Has John Axtell been trained for birth control darting?

The BLM 2003 Pine Nut HMA helicopter roundup in the Dayton area, listed in the History Table had a visibly negative impact on the genetic diversity of Pine Nut horses. Before that time, the Pine Nut was a significant draw for wild horse ecotourism. Bonnie Matton, as an ecotourist from California, speaking of Nevada's Pine Nut HMA in 1980 wrote: "The color variations of these animals were endless - strawberry roans, blue roan, blacks, palominos, grays, sorrels, buckskins, grullas (the Spanish name for a rare color between light brown and gray), pintos, many bays - every color one can imagine, was represented. I keep having to remind myself I wasn't dreaming and these horses were real. They belong to no one, yet all of us." <sup>2</sup> The account was originally published in California, later in Horse Tails, and Nevada Magazine. WHPL board member Dorothy Nylen was also struck by a wider array of colors that existed from band to band when she visited the Dayton Pine Nut front with her son in 2001. Some of these color patterns are not found in the Pine Nut today.

Most of these colors are still found in the Virginia Range, not far from the HMA. A unique genetic and historical factor in the Pine Nut that barely survived the 2003 roundup, are dun horses with dorsal stripes and horizontal leg striping. These have not been noted in the Virginia Range.

In 2013, the BLM took hair follicle samples from the removed Deer Run, Carson City band, but did not have them processed on the excuse that money was lacking, even though wild horse advocates offered to fund this. One of these horses had horizontal leg striping when young, and all except the grays had prominent dorsal stripes. BLM finds genetic information about wild horses to be a hinderance.

## **2.2 Livestock Grazing - Section III: Grazing Use - Section IV HAM Profile - Vegetation Trend data does not support assertions.**

BLM depends upon the lack of livestock grazing, to show horses are overgrazing the allotments, ignoring significant grazers such as rabbit, hares and other rodents. BLM's fence line photo or example does **not** illustrate an easily replicated view that can be found along fence lines of the HMA. There is poor evidence to support BLM's suppositions horses are over grazing as presented.

BLM did say that Churchill Canyon had no wild horse use and still indicated a "downward trend." Four years of drought with almost no snow in 2014-15?

**Who is Eating the Grass?** It is not always obvious. "Bison have a very conspicuous presence on the landscape," says Dustin Ranglack, who completed his doctorate in ecology in January of 2015 in Utah State University's Department of Wildland Resources and Ecology Center. <sup>3</sup> "With their herding behavior, dust wallowing, trampling and big dung pats, they're hard to ignore." In this controlled study in southern Utah, it was found that rabbits and hares consumed more grasses than buffalo. Ranglack's dissertation was inspired by complaints of cattle ranchers against the buffalo.

William S. Longland, of the University of Nevada in Reno, claims that kangaroo rats "cache large quantities of seeds when mature seeds are available on or beneath plants and recover most of their caches for consumption during the remainder of the year. Unrecovered seeds in caches account for the vast majority of Indian ricegrass seedling recruitment." (Ecosystem Services from Keystone Species: Diversionary Seeding and Seed-Caching Desert Rodents Can Enhance Indian Ricegrass Seedling 2013).<sup>4</sup>

Lack of protection for predators such as coyotes and bobcats in the Pine Nut HMA results in greater populations of rodent grazers.

**Precipitation:** The data from the two wonderful RAWS stations can not be used to forecast even the near future at this time. The data covers too short of a period. Very long term data going back thousands of years, is however, available. Certainly, present NOAA (National Oceanic and Atmospheric Administration) projections indicate that warming could continue and may be accelerating. But this

has happened many times before, on what we now call the Pine Nut HMA. Even in times when the “grazing pressure” by BLM standards was incredibly greater.

“Analysis of climate and vegetation proxies, such as pollen and carbon-isotope ratios, suggests that the Southwest experienced **abrupt and surprisingly pronounced climate shifts during warm periods of the Pleistocene**, including transitions to extended dry periods that lasted for hundreds or even thousands of years.” (University of New Mexico, 23 February 2011 | Nature).<sup>5</sup> This study helps illustrate the current biota has survived many climatic challenges in the course of it’s history, and yet the survival rate as been astounding! Sage-grouse survived!

In more recent times severe local droughts have occurred lasting up to 100 years and more. One lasted from approximately 900 to 1100, and another from 1200 to approximately 1350. (Kent Graham, NV Seimological Laboratory in National Geographic).<sup>6</sup>

Horses have been documented to have been reintroduced to the western Nevada landscape by the early 1800s. In 1826 Jedediah Smith encountered around 40 Indians on horseback at Walker Lake, who were known to the Paiutes living there. There was also evidence of large scale horse trading near the Humboldt Sink, (Traders and Raiders: Aspects of Trans-Basin and California-Plateau Commerce, 1800-1830. Thomas Layton, Journal of California and Great Basin Anthropology 1981).<sup>7</sup> The return of horses to the Great Basin predated the introduction of domestic cattle and sheep and other livestock. Elsewhere the reintroduction of the horse to North America occurred much earlier. At the beginning of the 1800’s, the Lewis and Clark expedition encountered Native Americans with full-blown horse cultures all the way to the Pacific Coast.

**In 1846**, Ulysses S. Grants had an interesting experience when accompanying American troops traveling through Texas to fight in the Mexican-American War: “A few days out from Corpus Christi, the immense herd of wild horses that ranged at that time between the Nueces and the Rio Grande was seen directly in advance of the head of the column and but a few miles off. It was the very band from which the horse I was riding had been captured but a few weeks before. The column was halted for a rest, and a number of officers, myself among them, rode out two or three miles to the right to see the extent of the herd. The country was a rolling prairie, and, from the higher ground, the vision was obstructed only by the earth’s curvature. As far as the eye could reach to our right, the herd extended. To the left,

it extended equally. There was no estimating the number of animals in it; I have no idea that they could all have been corralled in the State of Rhode Island, or Delaware, at one time. If they had been, they would have been so thick that the pasturage would have given out the first day. People who saw the Southern herd of buffalo, fifteen or twenty years ago, can appreciate the size of the Texas band of wild horses in 1846.”

But the future Civil War general and eventual president does not go on to describe devastation of the Texas environment. He is excited by the richness and diversity.

**Rangeland Health Assessments:** Due to approximately 165 years of euro american impact on western Nevada, and recent drought, this area could be in better condition.

Hydrologic function in part relates to biological soil crusts. While these can provide stability, they also tend to repel water rather than draw it into the soil to depth. A good snowpack can override this effect through the sustained release of moisture. Thunderstorms can produce some relief, causing some grasses to sprout. But native bunch grasses already established, are the ones most likely to benefit. Improvements to hydrologic function could dramatically help rangeland health.

**Soil stability section questions:** Need definition of bare soil, lacking biological crusts, or void of grasses or other vascular plants? The majority of plots had “none or little evidence of erosion or compaction,” and thus don’t show impact by horses? What percentage of rock cover? Surface rock cover, or to extended depth of several feet or more? Reference sheets the same as data sheets? Are there photographs or plot drawings?

**Hydrologic Function:** How is reduction in bunch grasses documented beyond general notes? Photographs or plot drawings?

**Biotic Integrity:** Majority of sites note few observations of soil surface loss and compaction layers.

**Perennial grass cover** would actually be expected to be fairly low after four years of drought and yet, photos of the area of Hercules Spring show otherwise. Many native grasses avoid germination in low water years altogether, as seedlings might

have a poor rate of survival. Rains received from thunderstorms in the summer of 2015 had less impact because of low permeability of soil crusts. A recent study in Patagonia found native grass seeds which lacked “**self planting mechanisms,**” have trouble getting through the soil crust barriers. Once established, these plants were not held back by biological soil crusts. (F. A. Funk 2014: Effects of Biological Soil Crust . . .)<sup>8</sup>

The dominance of different grasses at various sites relates to: soil quality, available moisture, soil texture, as well as competition between native perennial grasses. Indian Ricegrass, for example, does not have self-planting abilities and has a very hard shell. It often depends upon wind - blown sand or light gravelly soil for burial. According to the USDA,<sup>9</sup> the **average** number of years between maturity and successful germination and establishment, is six years - even in laboratory environments aimed at shortening this time frame. The seedling requires sufficient water to properly establish. A fairly deep and lasting snow, however, can offer the cover needed, a gradual release of moisture needed for germination in a variety of soil types. Some of these grasses exhibit a genetic dominance over others so that when grown closely together the seed of one type may be sterile.

Grazing is a factor, but who is grazing? In the previously mentioned Utah study, rabbits were not initially considered because they generally feed at night. No one noticed them. Looking for fence line views, WHPL located “grazed” Indian Ricegrass near the HMA fence, but on the “ungrazed side,” by BLM definition.

Cheatgrass is especially invasive in sagebrush steppe and bunchgrass regions in the Great Basin .<sup>10</sup> It was the dominant grass cover on the Pine Nut HMA noted by Bonnie Matton in 1980.<sup>2</sup> This was a horseback ecotourism camping trip (with her former husband), which covered wide areas of the Pine Nut over a period of several days. The prominence of cheatgrass in the Pine Nut and Virginia Ranges appears noticeably less today after four years of drought, and individual plants appear to be shorter and less robust.

WHPL members noted various weed species, such as Russian thistle and goosefoot throughout the region appear to be more prominent this year, perhaps because their clawed seeds have good self-planting abilities.

4.11 Riparian Assessments: The report says the Pine Nut HMA does not include riverine areas. Yet, according to the provided map, it borders and in some cases

includes riverine areas associated with the Carson River and ephemeral streams. This makes up its drainage between Carson City and Ft. Churchill. Over the years, access has been progressively cut off from horses on the Pine Nut HMA.

Advocates, as well as professional photographers, have heavily documented the horses use of river areas. But, horses still have some access.

**4.12 Water Sources and Availability:** At this point, we went to the maps which were made available for this proposal. The map titled “**Water Availability**” is confusing and inaccurate as it appears to show, among other things, the Dayton Ranchos as well as the golf course, several subdivisions and possibly a shopping center as within the Pine Nut HMA. Wells were mentioned in the BLM report, but may actually refer to those on other HMAs. A well noted on the map, is a Dayton well operated by Lyon County, again outside of the HMA. When one attempts to zoom in on this map, the names of springs are blurry or non-existent. Spots make the actual locations of the springs described difficult to physically find and visit.

This general HMA outline is repeated in other maps such as the “**Vegetation Map**,” and gives the illusion the HMA is larger than it actually is, and that it encompasses more diverse environmental areas. “Scrubland” is for the most part located on private land.

The **Vegetation** map also shows most of the HMA is by far, “woodlands,” though a comparison with satellite images on Google Earth suggests this depiction is not accurate. Instead, sagebrush appears to dominate. The unidentified white on the Vegetation Map may be sand dunes on private land.

When comparing these various maps to the 2007 Carson City, NV BLM map, (the most recent regional one offered by BLM through the Carson City office), BLM lands are noted in detail but the Pine Nut HMA is not defined. It appears portions of the HMA may be checker-boarded, and that the real boundaries are probably fairly complex.

**The most compelling observation is the BLM has not kept proper track of, or made attempts to improve springs in the Pine Nut HMA since 1980.**

Photo: **Hazlett Spring on the Clifton Allotment, October 13, 2015.** In mid-September 2015, an employee of the Canadian mining company, Iconic - while

working to regrade the road adjacent to the spring - saw horses lining up for water. He brought over a load of soil and did some minor banking work, being careful not to gouge the bottom of the spring. WHPL first reported the work to John Axtell when we turned in our September camera report on Pine Spring (which is further up the road). We thought BLM had managed the improvement. But, we heard rumors John Axtell had been on public media, reporting a rogue backhoe operator had destroyed a spring on the Pine Nut. WHPL board member and BLM volunteer, John Smith, quickly went up to check Hazlett Spring and found the Iconic employee still working on the road.



By June 2013, Hazlett Spring had stopped running and although requests were made, BLM refused to work on it or allow WHPL to do so. Local people from the Dayton Ranchos however, got it running again a couple of months later. It has continued to fill ever since, despite four years of drought. BLM's 2013 photo was taken after the spring was repaired. BLM's 2014 image shows Hazlett Spring still functioning. The comparative BLM image was taken in 1988, an above-average

water year, as the winters of 1986-87 and 1987-88 were documented El Nino seasons when the area received ample moisture from snow melt.



Above: These healthy antelope share Hazlett Spring with wild horses and other wildlife: (photo winter 2015). The WHPL photo was taken from a long distance as these antelope quickly disappeared at the approach of our vehicle. **The Wild Horse Preservation League believes antelope prefer the openness of Hazlett Spring as it affords earlier warning of approaching predators.** Dense thickets, such as those thought by BLM to be preferred by sage grouse, give the mountain lions extraordinary cover enabling significant kills. A kill site discovered in mid October 2015 at a densely surrounded spring in the Virginia Range, included five dead horses and two deer. While the number is unusual, it helps illustrate **horses actually improve spring sites for most other wildlife by trampling.**

From BLM notes on springs: Greg's Cabin Meadow Spring in Mill Canyon, went dry "**sometime**" between 2002 and 2013, a period of 9 years. There is no recent documentation on El Dorado Canyon. Is El Dorado Creek flowing? (Should be a good area for sage grouse). "Bull Run Spring ran in the 80's but was dry in 2012, and is located within an enclosure."

The BLM has record of 83 water sources in the HMA, not including the Carson River. Information is based on field remarks from a BLM Water Resource Inventory conducted 35 years ago (1980): "31 water sources (or 37 percent) have perennial surface water and are considered water sources for wild horses, livestock and/or

wildlife; 34 locations (or 41 percent of the total water sources) may have riparian vegetation or an old development, but do not have surface water available for use or measurements; and 18 locations (or 22 percent of the total water sources) are unknown for water availability and/or may vary seasonally.”

It is especially interesting to note **BLM has “created” a visual trend through their selection of photographs.** When looking at the 1978 Pine Spring photos, one needs to know the preceding winters of 1976-77, 1977-78, the area received above average precipitation. Willow are tenacious and will recover this winter. Photos of individual springs show different things, depending upon the angle and camera quality, especially in regard to Pine Spring. **Pine Spring is the location of the WHPL game camera which is managed by WHPL/BLM volunteers. The camera was installed in May, 2015.**

This photo shows John Cline programming the camera in May. Note: willow and wild roses in background and spring overflow on the hard packed vehicle road surface beyond him. **Like many of the springs shown in BLM photos, Pine Spring is located directly adjacent to the road.**



The next photo shows Pine Spring in **April 2015**. Photos were not taken of the spring until WHPL members had removed most of the debris. The ground texture in the lower right area was caused by sweating of boards, not the hooves of horses.

Sunday, October 18, 2015



Only the the small section with green pond weed, was exposed. The debris included sheets of plywood and asphalt roofing shingles, with sharp nails poking upward. Pine Spring was a serious wildlife hazard for an unknown period of time. **Utilizing “BLM time,” based on their photo, Pine Spring was filled with debris and became dangerous some time after May 1978.**

Below: Debris removed by the Wild Horse Preservation League from Pine Spring in April, 2015.



**4.13 General Wildlife:** Horses exhibit migratory patterns, similar to those of deer. But horses are stopped at fence lines. Like deer they also move about in darkness. **What the Bureau of Land Management has not done is to consider wild horses an “integral” part of the landscape, even though it’s part of the original mandate.** WHPL will attempt to do so.

Right:  
Mountain  
lion at Pine  
Spring.



The Wild Horse Preservation League game camera has been monitoring Pine Spring since May of 2015, on a 24 hour basis. Wild horses are the largest and heaviest animals to visit the spring on a regular basis in the time frame monitored. The compacted soil directly around the water hole is trod upon by other species as well (including humans). We have captured images of squirrels and rabbits eating pond weed, as well as horses. Significant consumption of the invasive pond weed by horses was not a continual thing, but rather two single events a month apart, and some of the plant material always remained. Feeding on willows was not documented.

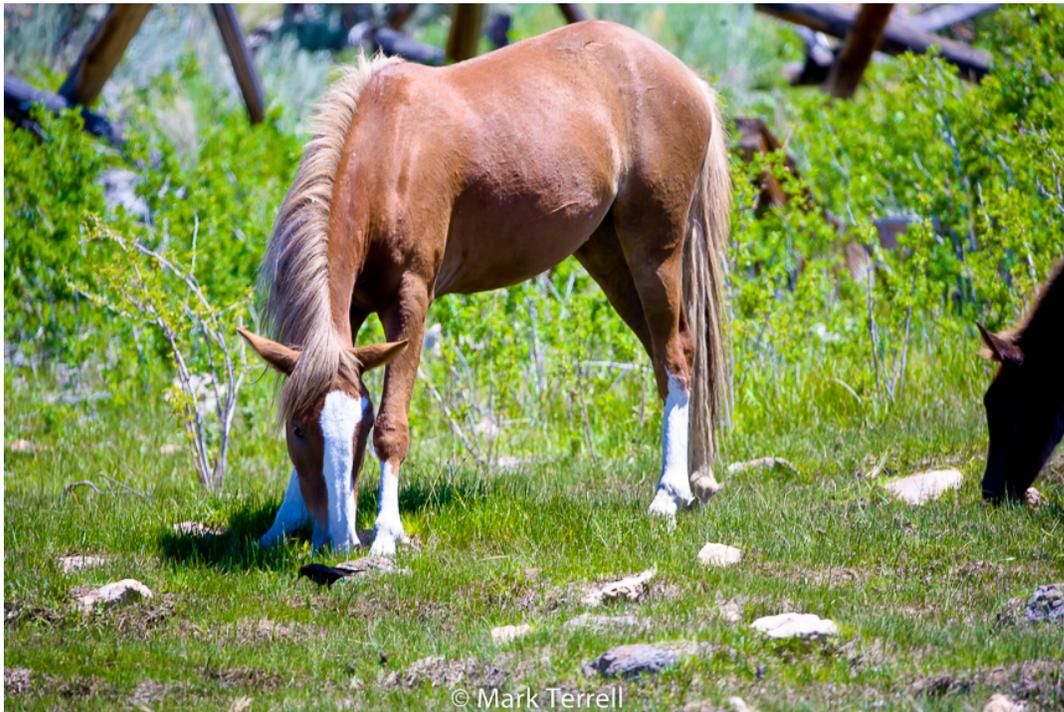
From **game camera** photographs we know that bats, coyotes, bobcats, mountain lions and owls, hunt and drink at this location at night; and rabbits, squirrels, raptors and smaller birds by day. Horses also drink at night. Thunderstorms in July negatively impacted water quality at Pine Spring with wind blown debris for days at a time; but animals still came to drink. Horses use an instinctive rapid movement of

their proboscis (noses) to clear the water surface and may provide a window of opportunity for other animals to access “cleaner” water.

**In reference to several BLM images of springs: If one were to “scare off” horses which had just finished drinking in dry, hot weather, the natural camera view would show only mud with hoof prints.** Few people realize how wildlife manages to do so much with so little. Swallows take mud for nests, and our camera caught one bird of prey apparently playing in the mud. Mosquitoes cannot reproduce in water that is constantly removed and refreshed.

The Wild Horse Preservation League’s camera documents this pattern day and night. Pine Spring continues to refill to overflowing. **With no previous records of refill time, present recovery times are inconsequential.**

The Hercules Spring photographs are confusing, it’s almost as if several springs are being shown. The first image shows overflow on to the hard packed road surface apparently coming from within the chain link fence enclosure, with hillocks of mud and possible plant material. Others seem to show a spring out in the open. Our associate, professional photographer Mark Terrell, says that Hercules Spring is continuing to do as expected and provided the following photograph of horses grazing nearby. Photo: Mark Terrell, June 2015.



© Mark Terrell

**Vegetation:** The BLM document says “bunch grasses did not evolve under continual grazing.” This is not based in fact, but a guess. G. Ledyard Stebbins<sup>11</sup> made a similar statement. His continual grazing definition did not include horses or antelope. Bunch grasses developed with them before the pleistocene, before the introduction of bison or sheep. Discussions about evolution necessarily takes us back to the pleistocene.

The odd truth is we don't know exactly what grasses were here then. The difficulty lies in the “absence of grass fossils dating from the Upper Pliocene and Pleistocene epochs,” throughout North America, (Coevolution of grasses and herbivores, G. Ledyard Stebbins, 1981).<sup>11</sup>

**Relevant prehistory:** Horses similar to those of today were common in the Great Basin, when man first arrived over 14,000 years ago (Paisley Caves, Oregon)<sup>12</sup> in a landscape dominated by sage and junipers. Horses and other large herbivores including mammoth, camels, muskox, and giant ground sloths, began disappearing between 12 and 10,000 years ago. (Fossil evidence shows that ground sloths apparently liked Mormon Tea and globe mallow.)<sup>13</sup>

When humans first arrived, the ecosystem included most animal and plant types that remain today, even jack rabbits, coyotes and wolves. (Pinyon was not in western Nevada until approximately 2,000 years ago: associated animals such as pinyon jays probably would not have been there either). According to Donald K. Grayson (The Great Basin: A Natural Prehistory 2011)<sup>14</sup>, after megafauna extinctions, only five large herbivores survived: bison, deer, elk, mountain sheep and pronghorn. Bison and elk were never significant in numbers. He suggests Nevada's **biotic soil crusts** may have developed due to the loss of large pleistocene herbivores (pg 179).

During the late Pleistocene, sagebrush (and/or closely related species of Artemisia) and other steppe shrubs, maintained their modern geographic ranges and perhaps even their upper modern limits. Precipitation was not significantly greater. Most plants were similar to those found today. But, were arranged differently on the landscape in periods of time when large pluvial lakes filled the valleys, the result of melting glaciers and warming trends. (Pack Rat Middens: The Last 40,000 Years of Biotic Change, 1990).<sup>15</sup>

**S. W. Edwards, in his “Observations on the prehistory and ecology of grazing in California,” 1991,<sup>16</sup> had a different view of the evolution of bunch grasses, (as more recently do others). He noted the Californian Pleistocene megafauna was a complex of grazing-browsing-trampling effects. Edwards infers that California's Pleistocene environments might have included ample open spaces richly endowed with perennial grasses. The structural diversity of the Californian Pleistocene megafauna suggests diversified feeding niches. Grazing would have been a major activity. The California flora evolved for millions of years in that milieu. From that perspective, he says it seems completely natural to experiment with livestock-grazing strategies today.**

Edwards suggests a model that the ecological needs of present-day grasslands flow at least in part from relations between extinct megafauna and Pleistocene grasses. The amount of adaptive evolution of native grasses since that epoch is not known. **“However, most present day native bunch grasses show substantial benefits, in a variety of situations, from grazing, clipping, or fire. Most are tolerant of severe grazing, and some are even tolerant of overgrazing.”**

What is the difference between “severe” and “overgrazing?” **There could be better land management schemes which could make better use of what we have, and include the present horses.**

Horses with their simpler “less effective” digestive tracts, are ideal for spreading native plant seeds. The same is true of elephants<sup>(22)</sup> who have been designated as a keystone species based on that very ability. And horses, who evolved with the local biome could play an instrumental role in improving native Great Basin habitat on the Pine Nut HMA.

Michael Ansong and Catherine Pickering reviewed fifteen studies on seed germination from horse dung; including six from Europe, four from North America, three from Australia and one each from Africa and Central America. They found almost two-thirds of the species germinated from horse dung were forbs, and thirty-three percent were (gramuloids) grasses. “Habitat disturbance from trampling facilitates germination of seedlings from dung in both natural and experimental studies. Some studies found that plants germinating from dung reach maturity and flower, while others found plants did not survive due to unfavorable growing conditions in the field. The diversity of species with seed that can germinate from horse dung highlights the potential of horses to disperse a range

of seed over long distances. **Whether such dispersal is beneficial or harmful depends on the plant and the context in which it germinates.**” (A Global Review of Weeds that Germinate from Horse Dung, published in Ecological Management & Restoration: 23 Sept 2013).<sup>17</sup>

The weight and hoof size of a horse, like that of an elephant, plays a key role in their seed planting abilities.

**Regrassing the Pine Nut:** A study recently conducted in Patagonia, aimed at reestablishing native grasslands, looked at the role of biological soil crusts. It was found that seeds which had trouble germinating, lacked self-burying mechanisms. Those seeds required some kind of disturbance. Disturbance in the soil surface also allowed water to infiltrate at a faster rate to greater depth. (Effects of biological soil crusts and drought on emergence and survival of a Patagonian perennial grass in the Monte of Argentina. Funk, Loydi & Peter 2014 J Arid Land).<sup>8</sup>

There is great difficulty in successfully reseeding a variety of native plants including Indian Ricegrass. This is one reason the Bureau of Land Management often seeds with nonnatives. In talking with Ed Kleiner of Comstock Seed, (a local Gardnerville, Nevada, native bulk seed source for restoration and highway projects), the best way to ensure successful germination is to disburse seed “just before a blizzard.” A significant snowfall buries seeds and provides in melting, a slow continual source of water. The idea is that come spring, seedlings will have already put down roots and gotten a good start. Progressive climate warming however might mean, even in an El Niño year, the possibility of a long lasting snowpack is less likely.<sup>18</sup>

Another way to ensure greater productivity is by injecting seeds in the fall below the surface. In Oregon, a new focus of research in success native seed propagation, is the development of an extruded mixture of fertilizer and seed - almost like the end product of a horse?<sup>19</sup>

**Thinking Outside of the Box with a Cube:** The Nevada Hay Grower’s Association in Yerington, Nevada, manufactures grass/alfalfa cubes for livestock. The Wild Horse Preservation League will be working with Comstock Seed and Nevada Hay Growers to develop a new kind of cube containing native plant seeds which could be used for supplemental feeding on the range. Supplemental feeding should be a policy of the Bureau of Land Management when coupled with on-the-range applied

birth control. This might be a good project for a partnership between local advocacy groups and the Bureau of Land Management in the Pine Nut HMA.

**Reviewing BLM photographs of native grasses**, several simply act to identify species. But again, who is “overgrazing” grass? BLM’s fence line photo **would** suggest horses, especially if that fence line view could be easily replicated, around the perimeter of the HMA, but it can’t.

The Wild Horse Preservation League notes that native grasses grow well in the Virginia Range in areas frequented by free-roaming horses, of perhaps greater variety than shown in the BLM report.

Right: bunch grasses in the hills above the truck route near Silver City, in the Virginia Range, Nevada. October 2015



The Wild Horse Preservation League is working with the Nevada Department of Agriculture, under the auspices of Return to Freedom (a national organization) to manage the wild horses of the Virginia and Flowery ranges, adjacent to the Pine Nut. WHPL owns a high quality birth control darting rifle and works with teams from other local horse groups to apply PZP to mares. Birth control darting started around September 1st and by mid October 2015 more than 50 have been inoculated at no cost to taxpayers. There are approximately seven certified wild

horse advocates able to dart in the region at this time, also in association with The American Wild Horse Preservation Campaign.

## **Summary:**

The Wild Horse Preservation League strongly opposes the removal of any so-called “excess” horses from the Pine Nut Horse Management Area. The winter of 2015-2016 promises to be one of the strongest recorded El Niño<sup>18</sup> events in history. This increased precipitation will act to improve the condition of a range stressed by four years of drought.

WHPL so opposed is the removal of horses in from unspecified adjacent areas. These may be in process of receiving birth control.

A helicopter “gather” is strongly opposed on moral as well as financial grounds. Roundups frighten horses, destroy family structure, and sometimes cause fatal injuries. Removed horses are sent to reside in longterm holding facilities at great taxpayer expense. Approximately 50,000 horses are in longterm holding. The American Academy of Sciences has stated they fail to accomplish management goals. **The Pine Nut HMA is small, the horse population is relatively small and must be managed where they are found.**

We recommend improvements be made to a number of springs that will help facilitate increased capacity and storage of water for all wildlife, including wild horses. One suggestion would be to add water tanks at locations easily accessed, and not close to present springs, that could further aid in the rehabilitation of spring areas.

WHPL fully supports the notion of range management as well as the use of field applied tested PZP birth control in the Pine Nut HMA. Longterm documentation of this method suggests such action will not significantly affect band behavior. PZP could either be handled using band-by-band bait and release, or through darting. Natural predation by mountain lions is a significant factor here and can act with the application of PZP to cause negative growth.

For this reason, we recommend the birth control program be reassessed every two years so adjustments can be made with a goal of applying birth control to only immature females and older mares at a future time. The presence of many older

mares, possibly twenty years of age is a strong indication of fundamental range health.

We recommend a program utilizing the natural seeding and planting abilities of horses be implemented to help “regrass” the Pine Nut HMA.

Lastly, the Wild Horse Preservation League looks forward to continued and expanding partnerships with the Bureau of Land Management on the Pine Nut Herd Management Area.

**A Path Towards Change:** The late August 2015 large scale incident of starving horses in southern Nevada was a terrible tragedy, brought about in part by the rigidity of a BLM system reluctant to change. What could have been done differently?

In 2013, the National Academy of Sciences published a book of recommendations for positive change.<sup>20</sup> One idea is that the Bureau of Land Management adopt a more intensive kind of management similar that practiced in places such as is done at Assateague Island in Maryland and at Shackleford Banks in North Carolina. It was noted that neither place is subject to the Wild Free-Roaming Horses and Burro act, but intensive management has proved successful on these islands. The Academy recommends the identification of sentinel HMAs. Little Book Cliffs, McCullough Peaks, and Pryor Mountains were pointed out as examples of steps in the right direction.

Certainly most HMA’s lack the manpower and staff to launch an intensive management program, and the Academy says that start up would be expensive. “However, addressing the problem immediately with a long-term view is probably a more affordable option than continuing to remove horses to long-term holding facilities.” **But it is exactly this kind of intensive management program that Return to Freedom has launched in the Virginia Range at no expensive to the state of Nevada.**

The program has only been in effect for a few months and there are many problems to iron out, but it is just getting started.

In southern Nevada, BLM could have trucked water to closer locations. They could have provided temporary diversionary feeding and birth controlled the whole lot

before any horses went hungry. Then the El Niño, which is finally starting to kick in, would have brought some relief, to the horses, to the surrounding country and to BLM. That BLM office could also have partnered with the local Spring Mountain Alliance. Unfortunately what actually happened was a terrible tragedy for the horses and a tragedy for the Bureau of Land Management.

## Part II:

Will be sent separately and includes more photographs and comments on springs.

## Clickable Bibliography

1.

[Identification of source-sink dynamics in mountain lions of ...  
onlinelibrary.wiley.com > ... > Vol 21 Issue 23](#)

Aug 30, 2012 - Overview · Editorial Board · Permissions · Advertise · **Contact ...**

Identification of source-sink dynamics in **mountain lions** of the Great Basin. **Alyson M. Andreasen**<sup>1\*</sup>; Kelley M. Stewart<sup>2</sup>; William S. Longland<sup>3</sup>; Jon P. Beckmann<sup>4</sup> and ... How to Cite **Author Information** Publication History Funding **Information** ...

2.

[Wild Horses of Afternoon Valley - Nevada Commission on ...  
travelnevada.com/discover/adventures/wild-horses-afternoon-valley](#)

H. **Bonnie Matton**. Photo Source: H. **Bonnie Matton**. By SYDNEY MARTINEZ | July 2014 | Updated: October 2015. Share: In 1980, my former husband, Bob, and I ..

3.

[Dustin H. Ranglack - Publications - ResearchGate  
www.researchgate.net/profile/Dustin\\_Ranglack/publications](#)

Article: Wild **bison** as ecological indicators of the effectiveness of management practices to increase forage quality on open rangeland. **Dustin H Ranglack** ...

4.

[William Longland  
www.unr.edu/eecb/people/william-longland](#)

University of Nevada, Reno

**Bill Longland**. Adjunct Professor. Contact Information. Email: [bill.longland@ars.usda.gov](mailto:bill.longland@ars.usda.gov) ... desert rodents can enhance Indian **ricegrass** seedling establishment.

5.

[Mega-drought threat to US Southwest : Nature News](http://www.nature.com/news/2011/110223/full/news.2011.120.html)

[www.nature.com/news/2011/110223/full/news.2011.120.html](http://www.nature.com/news/2011/110223/full/news.2011.120.html)

Feb 23, 2011 - Global warming could tip region towards repeat of **Pleistocene** events. ... Colorado River flows recorded at Lees Ferry, **Arizona**, from 2000 to ...

6.

[What the West's Ancient Droughts Say About Its Future](http://news.nationalgeographic.com/.../140214-dr...)

[news.nationalgeographic.com/.../140214-dr...](http://news.nationalgeographic.com/.../140214-dr...)

National Geographic Society

7.

[Traders and Raiders: Aspects of Trans-Basin and California ...](http://escholarship.org/uc/item/3793q75r.pdf)

[escholarship.org/uc/item/3793q75r.pdf](http://escholarship.org/uc/item/3793q75r.pdf)

by TN Layton - 1981 - 1

**Traders and Raiders: Aspects of Trans-Basin and California-Plateau Commerce, 1800-1830 ... Thomas N. Layton**, Dept. of Anthropology, San Jose. State Univ.

8.

[Chapter VI. Grant, Ulysses S. 1885–86. Personal Memoirs](#)

Grant, Ulysses S. 1885–86. ... **Ulysses S. Grant** (1822–85). ... A few days out from Corpus Christi, the immense herd of **wild horses** that ranged at that time ...

[Effects of biological soil crusts and drought on ... - English](#)

[jal.xjegi.com/EN/article/downloadArticleFile.do?attachType=PDF&id...](http://jal.xjegi.com/EN/article/downloadArticleFile.do?attachType=PDF&id...)

**2014**. Effects of **biological soil crusts** and drought on emergence and survival of a **Patagonian** perennial grass in the Monte of Argentina. Journal of Arid Land, ...

9.

[Plant Guide for Indian Ricegrass \(Achnatherum hymenoides\)](#)

10.

[Bromus tectorum - USDA Forest Service](#)

[www.fs.fed.us/database/feis/plants/.../all.html](http://www.fs.fed.us/database/feis/plants/.../all.html)

The **introduction** of **cheatgrass** to North America probably occurred independently, several times, via ship ballast, contaminated crop seed, packing material and ...

11.

[Coevolution of Grasses and Herbivores](#)

[www.fws.gov/.../Stebbins\\_1981.p...](http://www.fws.gov/.../Stebbins_1981.p...)

*Ecosystem Services from Keystone Species: Diversionary Seeding and Seed Caching Desert Rodents Can Enhance Indian Ricegrass Seedling Establishment*. Available from: <http://www.researchgate.net/publication/>

[263366764 Ecosystem Services from Keystone Species Diversions Seeding and SeedCaching Desert Rodents Can Enhance Indian Ricegrass Seedling Establishment](#)

12.

March 23, 2015 Michael Waters, an anthropologist from Texas A&M University and director for the [Center for the Study of the First Americans](#).

“It represents to us just more evidence that people were in the Americas before Clovis and that these people had some kind of weaponry that we haven’t found yet,” Waters said. “From 15,000 years on, they were moving across the landscape, hunting horse, camel, mastodon and mammoth.”

[Discovery of earliest evidence of human DNA puts Oregon's ...  
www.techtimes.com/.../discovery-of-earliest-evidence-of-human-dna-put...](#)

Oct 6, 2014 - A **cave** complex near **Paisley** in Oregon is now in the list of National Register of Historic Places after it was **discovered** to hold DNA evidence of ...

13.

[Fossil Record 3: Bulletin 53 - Page 660 - Google Books Result  
https://books.google.com/books?id=fugoCgAAQBAJ](#)

Robert M. Sullivan, Spencer G. Lucas, Justin A. Spielmann - 2011 - Fossils ... jeffersonii include two from the **Great Basin** of Utah and one from Nevada ( McDonald, ... The Shasta **ground sloth** *Nothrotheriops shastensis* is the most abundant ... **Ground Sloth** is better known than for any other member of the **Pleistocene** ... in southern New Mexico, suggest a diet dominated by **Mormon tea** (*Ephedra*), ...

14.

[The Great Basin: A Natural Prehistory - Donald K. Grayson ...  
https://books.google.com/books/.../The\\_Great\\_Basin.html?id...Google Books](#)

Steven R. Simms, author of *Ancient Peoples of the Great Basin* and the Colorado Plateau. Praise for the previous edition, *The Desert's Past*: "Grayson clearly has a great love for and deep ... University of California Press, 2011 - Nature - 418 pages ... The Late **Pleistocene** Physical Environment Lakes and Glaciers. 87.

15.

[Packrat Middens: The Last 40,000 Years of Biotic Change  
https://books.google.com/books?isbn=0816511152](#)

Julio L. Betancourt, Thomas R. Van Devender, Paul Schultz Martin - 1990 - Science The steppe plants recovered from **Pleistocene** middens in the Snake Range of east-central **Nevada** include **sagebrush**, rabbitbrush, horsebrush, snake-weed, ..

16.

[Observations on the prehistory and ecology of grazing in ...  
arc.lib.montana.edu/range-science/item/347](http://arc.lib.montana.edu/range-science/item/347)

Edwards infers that California's **Pleistocene** environments might have ...  
However , most present day native **bunchgrasses** show substantial benefits, in  
a variety ...

17.

[A global review of weeds that can germinate from horse dung  
onlinelibrary.wiley.com](http://onlinelibrary.wiley.com) > ... > Vol 14 Issue 3

by M Ansong - 2013 - [Cited by 9](#) - [Related articles](#)

Sep 23, 2013 - A global review of weeds that can germinate from **horse dung**. Michael  
**Ansong** and; Catherine Pickering. Article first published online: 23 SEP ...

18.

[NOAA: Strong El Niño sets the stage for 2015-2016 winter ...  
www.noaanews.noaa.g...](http://www.noaanews.noaa.gov)

National Oceanic and Atmospheric Administration

19.

[Download report \(PDF\) - Oregon State University  
oregonstate.edu/dept/eoarc/sites/.../785.pdf](http://oregonstate.edu/dept/eoarc/sites/.../785.pdf)

consistently establish **native** plants from **seed** may indicate that these practices ....  
coined “**seed extrusion** technology” to produce pellets that encapsulate **seeds** ...

20.

[Using Science to Improve the BLM Wild Horse and Burro Program:  
A Way Forward \(2013\)](#)

21.

[Drought is taming wild horses in Southern Nevada - Las ...  
lasvegassun.com/.../drought-taming-wild-horses-southern-...](http://lasvegassun.com/.../drought-taming-wild-horses-southern-...)

Sep 14, 2015 - Starting in late August, the BLM rounded up 201 wild **horses** from the  
Cold Creek range northwest of **Las Vegas** to keep them from **starving**.

22.

[Megagardeners of the forest – the role of elephants in seed ...  
www.sciencedirect.com/science/.../S1146609X11000154](http://www.sciencedirect.com/science/.../S1146609X11000154)

Part II: Wild Horse Preservation League response to Pine Nut HMA  
Draft Evaluation Prepared by [REDACTED]

**Comments on springs:**

**West Barton Springs** is actually a series of pools. I believe four were counted. (Visited on October 20, 2015). We saw 22 horses in 3 bands (2 families and 1 bachelor) that passed through. The enclosure is still open, and no repairs have been made by BLM. Each band spent a short time at the springs, one stallion had a great time bathing in the lowest spring outside of the enclosure. All three groups moved on and left the area with a fifteen minute time frame. There was no waiting.

From top of Barton Springs enclosure looking to bottom. Highly saturated area from top to bottom,



Wednesday, October 21, 2015

Lower pool  
outside of  
enclosure,  
same as shown  
with muddy  
horses above.



**Hercules Spring:** Another really wet area. This view does not show the actual spring, but super-saturated ground coming out of enclosure on to the road. One could see the water actively dripping out. At one time it appears it was piped under the road and below. Serious work is required.

**Hercules Spring is the first site where bunch grasses were actually seen. They were found all around the barbed wire enclosure and down the hill across the road.**



Wednesday, October 21, 2015



Interior of enclosure had some dense thicket and higher grass of unknown variety (left). Only saw one bunch grass within the enclosure (below).

Could not determine locale of other “Hercules Spring” in BLM photos.

Below is a small creek with water in places with moss. Sheila Schwadel. Very thick willows in this area found within walking distance of Hercules Spring slightly up road. We saw three deer.



Wednesday, October 21, 2015

Spring/seep on hillside south above Dayton Valley Road (Latitude: 39 degrees 14'35.60" N, Longitude: 119 degrees 29'42.86" W) shows the effects of 4 years of drought. The "pool" area shown could not be deeper than a few inches, Horses had just visited. This area could be improved fairly easily to create a pool. Down the hill from this is a saturated area and the remains of a blind. WHPL members were here in 2013 and there were cattails in the area of the blind. There are none now. This condition appears to be related to drought. Saw a band of horses drink here.

View below: taken looking up hill toward location of first photo. See person near first location. Ground seeps and wetness extends to this lower area.



Wednesday, October 21, 2015

A spring found nearby, but uphill (Latitude: 39 degrees 14'43.47" N, Longitude 119 degrees 24'43.53" W). May be the first blue dot off of the Dayton Valley Road area on the BLM water map. Found at the base of a large old willow seen at skyline in center of photo. Possibly old sheep camp near cottonwood in foreground. Looks like someone tried to put a catchment basin to left of cottonwood, but no spring function. Spring is extremely shallow (an inch deep). The cottonwood can be viewed from main road.



Below: Spring minimal.  
Rocks in placed by  
someone to help catch  
water?



**El Dorado Canyon Creek:** Dorothy Nylen talked with Kip Allander, (groundwater specialist with the Nevada Water Science Center, U.S. Geological Survey in Carson City, Nevada), regarding El Dorado Canyon Creek. He mentioned his brother was just up in the higher part of El Dorado Canyon the previous weekend, and reported the creek is running above ground in sections, off and on.

**Summary:** Signs of the four-year drought were evident throughout the Dayton related Pine Nut HMA, near springs which were visited on October 20, 2015. Horses do not show obvious culpability of significant long-lasting damage at this time. Overall, horses are the largest and heaviest mammals on the range in the Pine Nut HMA. But in terms of population number by species, are among the smallest.

During the approximately five hours spent on the Pine Nut, we saw approximately 25-30 horses in the higher country (from West Barton to above Hercules), and about ten horses in two bands near the unnamed springs in the lower part. The present horse population shows many more positive impacts on the environment rather than negative.

**Horses do not appear to be over populated, but should be managed with PZP at a zero growth rate until negative growth appears. The mountain lion population will assure negative growth under these circumstances.**

**We would advise BLM to offer protection to coyotes, bobcats and other smaller predators. Make the Pine Nut HMA a trap-hunt free zone for a period of two years so the effects can be observed. This would help grass recovery.**

Drought evidence presented itself not in the form of destruction, but in the simple lack of robustness of grass. The dominant grass type could not be identified, but was small and shriveled dry. It was not cheatgrass nor a bunch grass. Closer examination showed it to be widespread. Cheatgrass was noted in some places but did not have a dominant presence.

**The widespread presence of horse manure across the range is a positive and hopeful factor regarding future range regeneration.** Horse manure is a soil enhancer and fertilizer of plants, including the very low sagebrush dwarfed by the

shallowness of the soil in which it grows. Clumps of manure are seed banks spread over a very wide area awaiting better precipitation.

**There are opportunities to improve all springs visited. In most cases, simple fixes could be made in a short time.** Care should be taken not to scoop more than six inches in depth, and provide additional banking for greater water holding. At Hercules, there is tremendous opportunity for improvement by piping water from above to below the road level into a shallow holding area that would then overflow. Presently, the road in this location is a mess, muddy, due to lack of management.

**Hercules has abundant though subtle evidence of needle grasses** all around the enclosure and below the road. One did not see the typical rounded-crown base, but widespread eruptions, possibly inspired by the recent rains and cooler days and nights. It was not clear whether the plants represented deep-rooted systems or seedlings. No grazed crowns were observed as is typical on the Virginia Range when bunch grasses have been heavily grazed. Most interesting are that the needle grasses were found almost entirely outside of the enclosure. This might be an example of seed planting by horses. In the Hercules enclosure, the spring is entrenched in thicket and not available to larger animals including deer. Deer hoof prints were seen in the mud in seep on the road, and deer were seen nearby.

Hercules is not technically located in a true woodland area, but there were many more trees than at lower elevations. Brush is still dominant. Close by, are thick willows in the small ravines below road level.

The lowest spring/seep locations (identified earlier by coordinates) showed less water, some drying up of the seep from the last time we visited in 2013, when cattails were present. Important minor improvements could be made to make water better accessible to wildlife.

1. **Dodder (*Cuscuta* spp.)** Found on Dayton Valley Road near the HMA. **This is an annual parasitic weed that grows only by penetrating tissues of host plants to obtain water and nutrients.** It is found throughout California up to an elevation of 8,200 feet (2,500 m). Native to California, it usually grows on various herbs and shrubs in most natural communities and are not considered weeds in these conditions. IF Dodder is invasive in Nevada, it needs to be monitored for negative impact on the HMA. October 20, 2015.