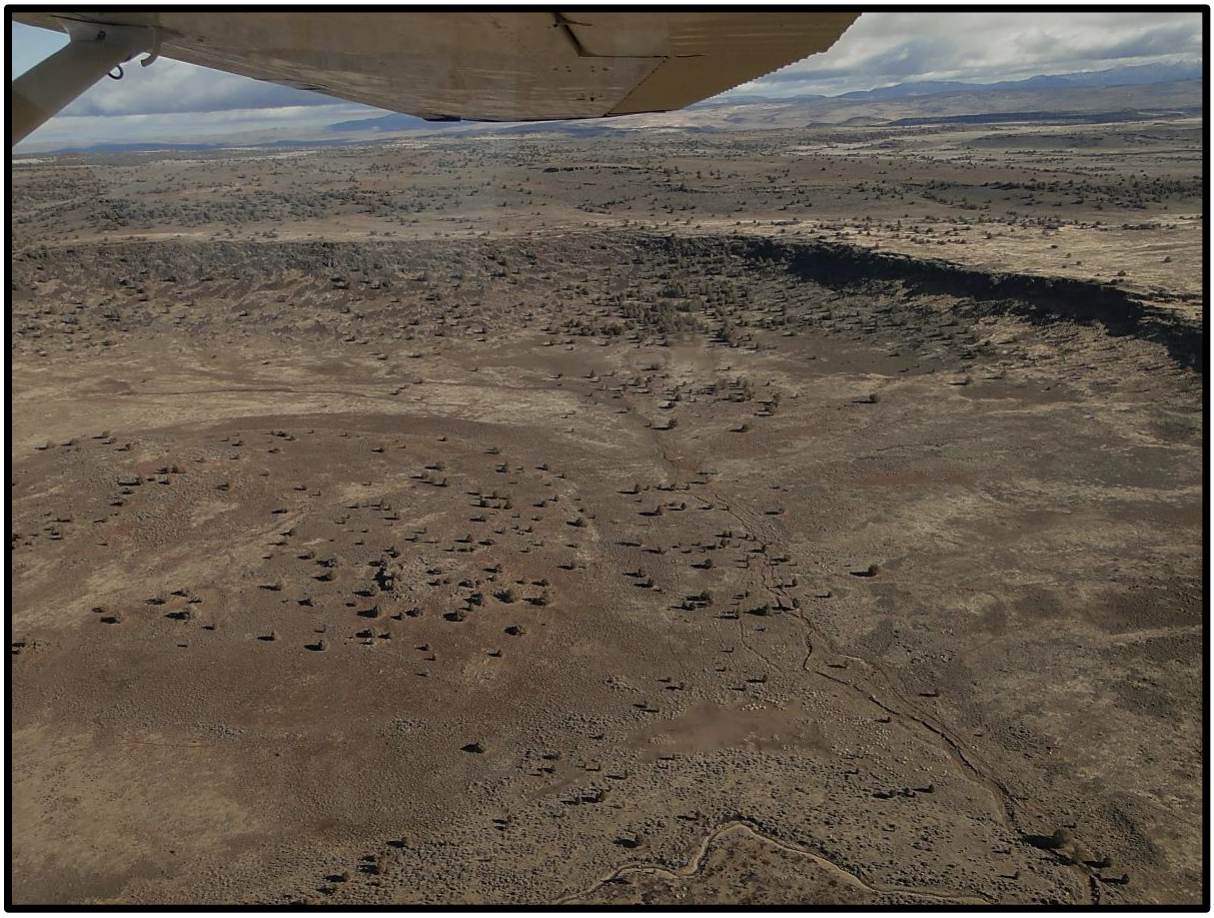
Northern California/Nevada Border

Twin Peaks Wild Horse and Burro

Herd Management Area

Aerial Population Survey

December 22, 2014



Northern Twin Peaks “Hole in the Ground” Volcanic Caldera

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Abstract

An independent aerial survey was completed over northeastern California and northwestern Nevada for the Twin Peaks Wild Horse and Burro Herd Management Area on December 22, 2014. The objective was to estimate the population of wild horses (*Equus caballus)* and burros (*Equus asinus)* and to monitor the habitat recovery from the Rush Fire, which burned 315,577 acres in August 2012. The flight and pilot were arranged and made possible through LightHawk.

During the aerial survey a total of 62 horses and 11 burros were counted along the 174 miles of transect strips flown within the Twin Peaks Herd Management Area boundary. In addition, several groups of approximately 90 trespass cattle grazing on public land were documented in the no grazing restricted area from the 2012 Rush Fire. These were found in the south-western section of the Twin Peaks Grazing Allotment #00701 in the Skedaddle mountain range.

Using the aerial strip transect method, the survey estimated the populations of wild horses and burros in the Twin Peaks Wild Horse and Burro Herd Management Area as follows:

(a) 447-593 wild horses (including some mules)

(b) 101-120 wild burros

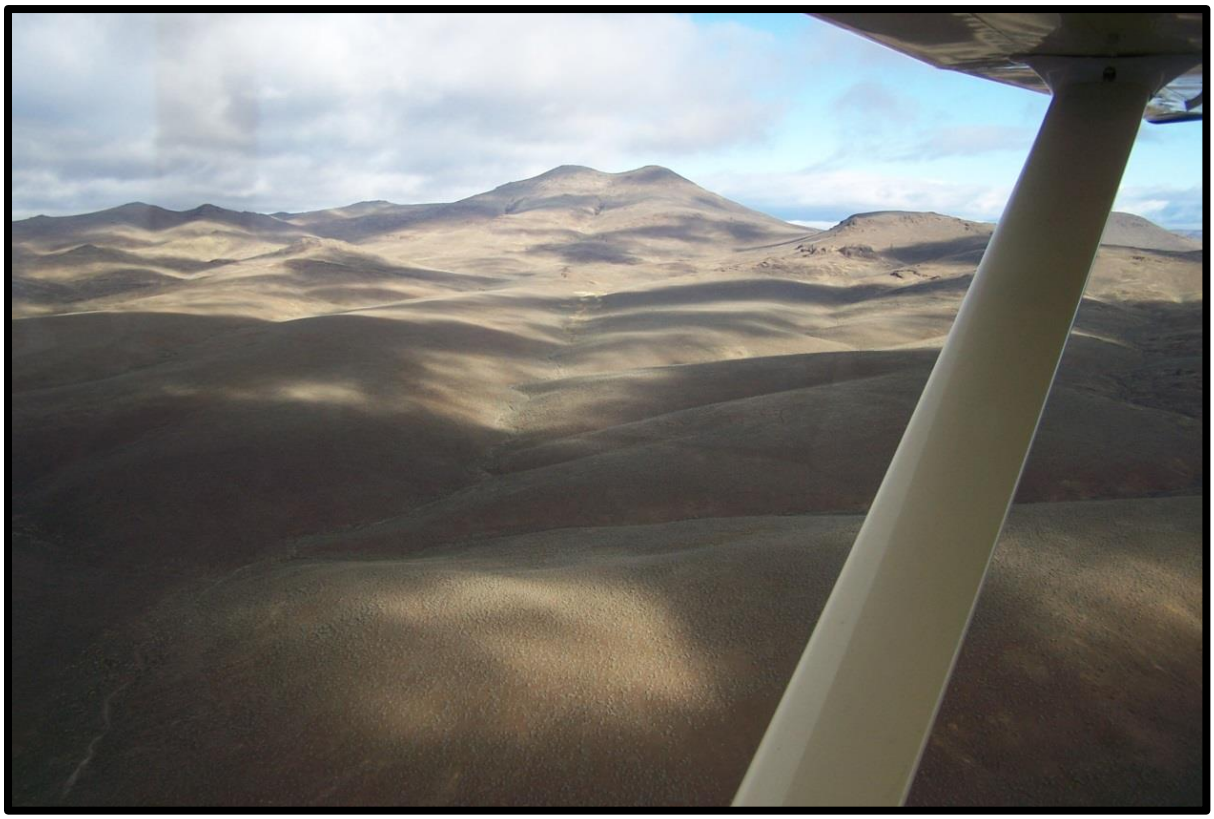
Over 200 photographs were taken during the flight; photos by Craig Downer and Jesica Johnston. The flight was made possible due to the coordination and support from LightHawk. All photos can be found at the following link.
https://www.flickr.com/photos/88871101@N06/sets/72157648054548783/

A short summary video of the flight can be found at http://youtu.be/y8A4D42SJ6I

Background

This report is part of an ongoing body of independent research consisting of both field and aerial surveys in the Twin Peaks Wild Horse and Burro Herd Management Area in order to provide data and input to the Bureau of Land Management (BLM) for consideration toward resource management decisions on public land in this area.

The Twin Peaks Herd Management Area covers 789,852 acres of mostly public land with some small privately owned land interspersed. The Herd Management Area is approximately 35 miles wide east to west and 55 miles long north to south and is bordered by Highway 395 on the west, Honey Lake on the south, Cottonwood Mountains on the north and the Smoke Creek Desert on the east. In addition to being legal habitat for wild horses and burros, the Twin Peaks Herd Management Area encompasses seven Wilderness Study Areas; and provides habitat for many native wildlife species, including populations of the greater sage-grouse (*Centrocercus urophasianus*) and the pygmy rabbit (*Brachylagus idahoensis*), both of which are candidate species for listing under the Endangered Species Act.



Skedaddle Mountain Range

In August and September of 2010, the BLM's Eagle Lake Field Office removed 1,581 wild horses and 159 wild burros from the Twin Peaks Wild Horse and Burro Herd Management Area. A total of 1,740 wild equids were removed from this section of public land that is legally designated for wild horses and burros. At the time of the roundup, the BLM claimed the wild horses and burros were in "excess". Their determination of "excess" was not made using scientific terms of ecological carrying capacities, but instead by static "appropriate management levels" assigned by the BLM.

This area is subject to heavy livestock grazing by private ranching interests. The BLM allocates 18% of the forage to the wild equids living in the Twin Peaks Herd Management Area and 82%, provided to privately owned livestock. This is in conflict with the mandate in Section 2 c of the Wild Free-Roaming Horses and Burros Act of 1971 which states that herd areas managed by the BLM or territories under the US Forest Service, shall be "devoted principally" to the welfare and benefit of wild horses and burros; not livestock interests (WFRHBA, 1971).

In 2013, the National Academies of Science (NAS) completed a comprehensive review and report. This concluded that the Bureau of Land Management's Wild Horse and Burro program has failed to use scientifically rigorous methods to estimate population sizes and growth or to assess the impacts of intensive management actions on genetic viability (NAS, 2013). The NAS report found no evidence of excess wild horses and burros, which raises questions about the basis of all BLM management decisions for wild horses and burros and other range issues that are based on scientifically under-informed or inaccurate population and range information.

Resource Allocation

The Twin Peaks Herd Management Area is the largest remaining population of wild horses and burros in California even though a portion of the Herd Management Area occurs in Nevada. An analysis of the population estimates together with the assigned BLM appropriate management levels and forage allocations for the Twin Peaks Herd Management Area demonstrates that the wild horses and burros here are neither adequately represented nor fairly allocated resources by BLM's management plans. Privately owned domestic livestock interests are favored with the majority of the forage resources being allocated to domestic livestock despite the legal provisions including principal allocations set forth under the Wild Free-Roaming Horses and Burros Act of 1971 (WFRHBA, 1971).

The BLM's artificial appropriate management levels for the wild horses and burros in the Twin Peaks Herd Management Area are as follows: 448-758 for wild horses and 72-116 for wild burros. The BLM's assigned appropriate management levels are in direct conflict with naturally occurring self-sustaining populations. Populations are limited by

environmental factors like food, water, shelter, predators, and climatic conditions. The BLM fails to acknowledge natural limitations despite evidence that wild horse and burro populations on public lands have demonstrated self-regulation without management by the BLM (NAS, 1982).

An in-depth assessment found the Bureau of Land Management's administrative decisions for wild horses and burros in the Twin Peaks Herd Management Area are found to be politically driven and reflect a loose interpretation of both the legislative requirements and scientific findings, in order to favor private livestock grazing interests (Johnston, 2011).

Previous Independent Surveys

In October of 2010, an independent aerial survey and analysis was completed using straight line strip transect methodology. This survey estimated that between 84 and 265 wild horses, and a relatively small population of burros, remained in the Twin Peaks Herd Management Area after the massive removal during the summer of 2010. These results were supported by the historic population data and viable reproductive rates and ground observations (Downer, Johnston, 2010).

A second aerial survey was completed in October of 2012, after the Rush Fire burned 315,577 acres in the Twin Peaks area in August 2012. The objective of that survey was to estimate the population of wild horses and burros and to assess the ecological damages from the Rush Fire. The survey estimated that between 312 and 387 wild horses (including mules) and a small population of wild burros remained in the Twin Peaks Herd Management Area. The survey also showed that, although extensive, the affected burn area resembled a mosaic pattern with many non-burned areas of different sizes within the perimeter of the fire boundary. This patchwork of unburned areas acts as seed sources or banks for the natural regeneration of the burned areas (Downer, Johnston, 2012).

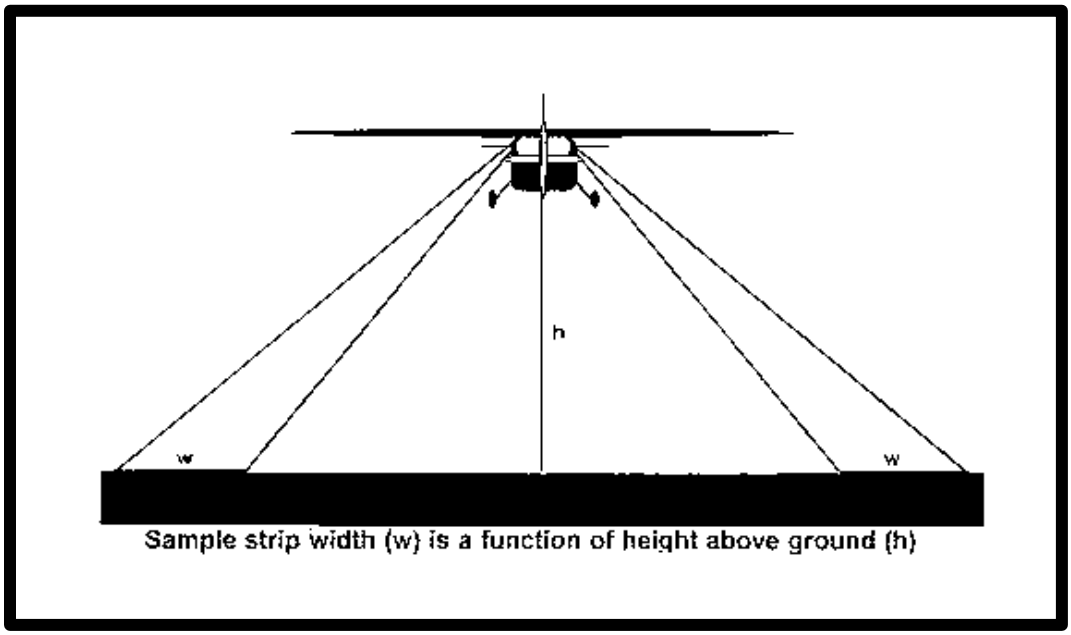
A third aerial survey was completed in November of 2013. The objective was to estimate the population of wild horses and burros and to monitor the recovery from the Rush Fire. The survey estimated that the populations of wild horses (including mules) were between 351-459 and that approximately 230-287 wild burros remained in the Twin Peaks Wild Horse and Burro Herd Management Area. Over 300 photographs and continuous video footage via GoPro were taken during the flight. (Downer, Scott, Johnston, 2013).

Survey Methodology

Our most recent flight was completed in a 1957, Cessna 172 high-wing, tail dragger airplane. In addition to the experienced search and rescue pilot, participants included two experienced wildlife observers familiar with the Twin Peaks Herd Management Area.

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. The transect strip establishes a density ratio that is used to estimate low to high population range. This survey was adapted from methodology used for estimating pronghorn and other 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 of equid movement that could lead to multiple counts of the same individuals.

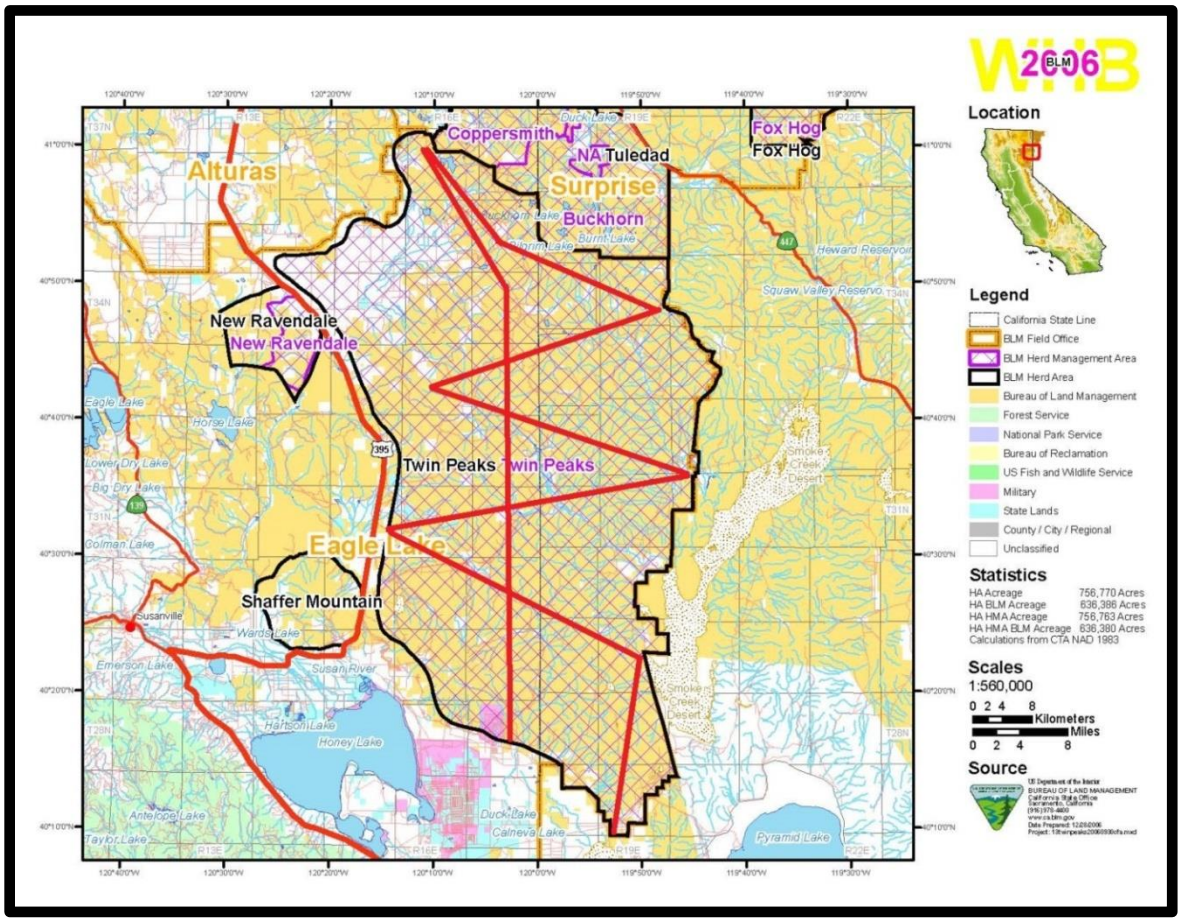


Aerial Transect Technique

Data

On December 22, 2014 the aerial survey flight left the Reno-Stead Airport at 9:25 AM and returned at 11:35 AM with no stops. The weather was partly cloudy with some wind with approximately 10 mile visibility, and a temperature reading of 46 degrees Fahrenheit at departure.

The aerial transects were randomly selected and flown to cover both the burned and un-burned portions of the Twin Peaks Herd Management Area. A total of 174 miles were flown on 9 transect lines surveying approximately 11% of the study area and all 5 BLM assigned wild horse and burro home ranges within the Twin Peaks Herd Management 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 survey strip on each side of the plane. The transects covered all 9 of the major grazing allotments within the wild horse and burro herd management area. These livestock allotments are separated by fencing and/or natural barriers to control livestock, but also restrict wild horse and burro movement contrary to the “free roaming” lifestyle mandate under the Wild Free Roaming Horses and Burros Act (WFRHBA,1971).



Flight Map and Survey Transects

Results

By using the relative density of the wild horses and wild burros observed along all of the transects it is estimated that there are between 447-593 wild horses (including mules) and between 101-120 wild burros remaining in the Twin Peaks Wild Horse and Burro Herd Management Area. These results are consistent with previous population estimates using the same transect methodology and are shown in Table 1 below (Downer, Johnston, 2010) (Downer, Johnston, 2012) (Downer, Johnston, Scott, 2013).

Table 1: Summary of Aerial Population Estimates

Aerial Survey Population Estimates							
2010		**2012**		**2013**		**2014**	
Horses	Burros	Horses	Burros	Horses	Burros	Horses	Burros
84-265	NA	312-387	NA	351-459	230-287	447-593	101-120

Horse Population

The surveys indicate that the wild horse population is increasing. The average increase is estimated at 19%, which is higher than normal population increases of 10% based on yearling survival rates (Gregg, LeBlanc, Johnston 2014). The higher population increase in the surveys is most likely a compensatory reproductive response resulting from the massive population disturbance and removal from the 2010 roundup. Compensatory reproduction is defined as an increase in reproduction as a direct or indirect consequence of management reductions, including removals and contraception which results in increased fertility, foal survival, or adult survival due to reduced competition for forage (NAS, 2013). In the Twin Peaks Herd Management Area; the massive roundup in 2010 is likely responsible for the increased population growth rate.

Burro Population

The survey and population estimates for the remaining wild burros show some discrepancies, but can be explained by the following factors:

- burro captures and removal
- small population size

The BLM Eagle Lake Office trapped and removed at least 22 burros from the Twin Peaks Herd Management Area between October 2012 and November of 2013; with possible other capture and removals since the 2010 roundup. Furthermore, on

November 25th 2014, the BLM filed Decision Record CA-N050-2015-03 to remove more burros. This decision record states that they would be capturing and removing from 90-110 wild burros from the Twin Peaks Herd Management Area (NEPA Register, 2015). This action was spurred by complaints from ranchers that wild burros had trespassed onto private land from the herd management area; although the private lands in question are within the legal herd area. It is currently unknown if this action has been completed or is in progress, but the smaller population detected during this survey indicates they have already been captured and removed.

Genetics

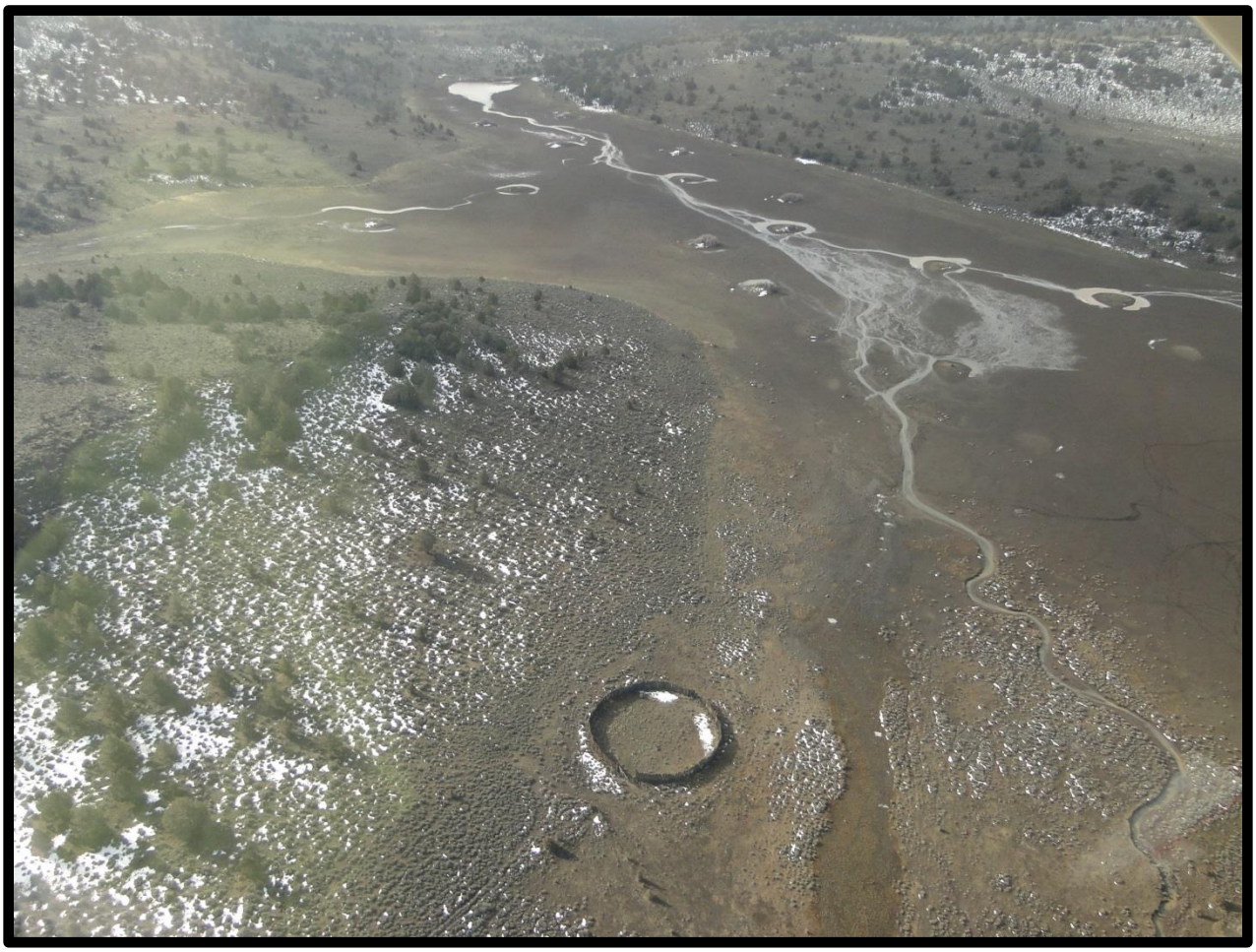
Since the massive removal in 2010, the Twin Peaks wild horse and burro populations appear to be recovering, but significant concerns remain for these relatively small, isolated populations, which have been subject to reduced genetic diversity. These concerns are compounded by significant fencing that restricts gene flow. Fencing separates the wild horses and wild burros in what BLM calls “home ranges” that correlate with livestock allotment boundaries. These livestock allotments are based on fence-lines and/or natural barriers designed to restrict livestock movement and control livestock grazing. This negatively impacts the wild equid free-roaming behavior including natural rest and rotation of vegetation. This also impacts social units resulting in fragmentation and small sub-divided populations with low genetic variability.

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

Additionally, genetic testing was completed on 39 wild burros removed from the Twin Peaks Herd Management Area in 2010. The genetic testing results identified evidence of population subdivision and indicated that the “*population size based upon appropriate management levels is somewhat below the minimum viable population level*” (Cothran, 2012). This report reflects the genetic health of the population in 2010 *prior* to the removal of 160 wild burros, which significantly reduced the population, and compounds concerns regarding genetic variation for the remaining Twin Peaks wild burros.

Reduced genetic diversity can “*impair vigor, fertility, and disease resistance and could limit ability to respond to environmental variation*” (Goodloe et al., 1991). In addition, research has shown that significantly reducing populations, as the BLM did here in 2010, can (a) result in genetic bottlenecks; and (b) cause hidden population structures

resulting in behavioral isolation, further restricting gene flow (Ashley, 2004). Decisions to reduce herd populations further and therefore decrease genetic diversity would put the Twin Peaks wild horse and burro herd in danger of a die-off if any natural or manmade disaster occurred in the Twin Peaks herd management area; be it wild fire, extreme drought, severe winter or massive predation. Additional removals of an already compromised and underpopulated wild horse and burro population will jeopardize their long-term ecological adaptation and survival.



“Round Corral” in Northern Twin Peaks Herd Management Area

Wild Burro Lower Skedaddle Mountain Range

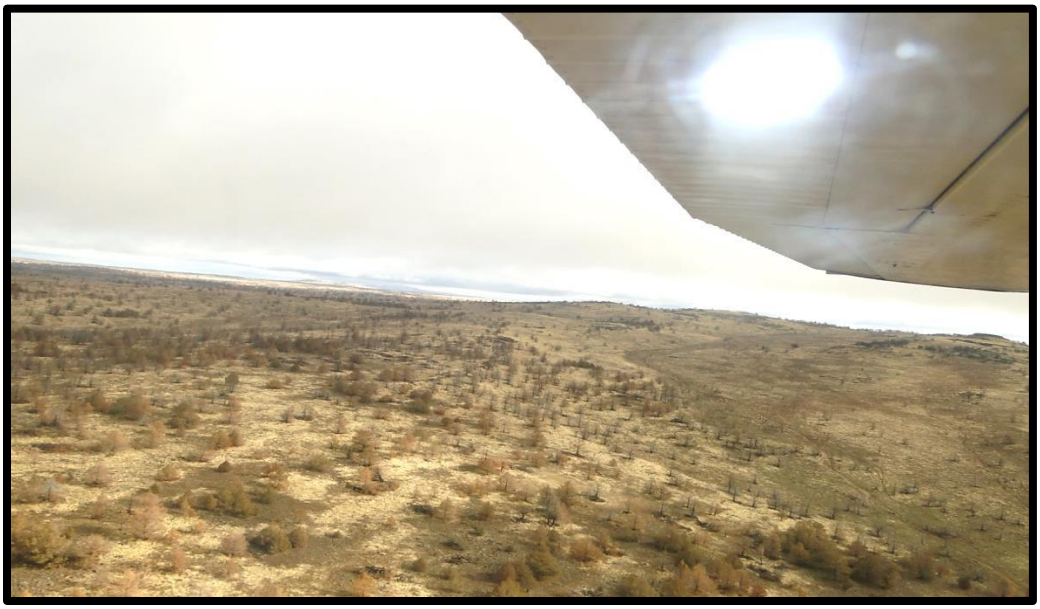
Wild Horses Buffalo Meadows Area

Fire

Wild horses and burros are natural restorers of burned-over areas. This is due both to their post-gastric digestive systems, typical in all families of the taxonomic Order Perissodactyla, and to their wide-ranging mobile behavior. They are well adapted to reduce coarse, dry, flammable vegetation without overly expending metabolic energy in the digestive process as well as complement habitat for other herbivores and the greater well-being of the entire ecosystem (Downer, 2011) (Downer, 2014).

Through the public comment process, the BLM was advised not to reduce the wild horse and burro populations; as planned in August 2010. This was not only because these reductions would set back the wild horses' and wild burros' respective ecological adaptations and undermine their long-term viability, but also compromise self-stabilization components of the population due to mature social units being disturbed (Downer, 2010) (Johnston, 2010).

Both aerial and field surveys have indicated that significant wild horse and burro population reductions have caused this region to be more susceptible to catastrophic fires; as the Rush Fire in 2012 subsequently demonstrated (Downer, Johnston, 2010). Wild equids complement the ecosystem and fill an important niche that enhances the life community and biodiversity of this Great Basin ecosystem. Such mutualism has been proven through meticulous ecological studies in the Serengeti of Africa as well as in other regions of North America. (Bell, R.H.V., 1970; University of Wyoming, 1979), and sources cited in (Downer, 2007) (Downer, 2011) (Johnston, 2011) (Downer, 2014).



Rush Fire Burn Recovery Area near Buckhorn Byway Northern Twin Peaks

Conclusion

This aerial population survey and other supporting research indicate that the remaining wild horse and burro population in the Twin Peaks Herd Management Area is increasing, but remains at significant risk. These small, isolated sub-populations of wild horses and burros within the Twin Peaks Herd Management Area have been repeatedly subject to major population reductions. This has resulted in a loss of genetic variation, as a consequence of genetic bottlenecks, and has seriously compromised both the short and long-term viability of the largest remaining herd of wild horses and wild burros in California. Further loss of genetic variation combined with future disturbances to social infrastructures will negatively impact both of the equid species and their respective abilities to adapt to the changing ecological conditions in the Twin Peaks Herd Management Area.

The 1971 Wild Free Roaming Horse and Burro Act states:

§ 1331. Congressional findings and declaration of policy

Congress finds and declares that wild free-roaming horses and burros are living symbols of the historic and pioneer spirit of the West; that they contribute to the diversity of life forms within the Nation and enrich the lives of the American people; and that these horses and burros are fast disappearing from the American scene. It is the policy of Congress that wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death; and to accomplish this they are to be considered in the area where presently found, as an integral part of the natural system of the public lands.

Twin Peaks Wild Horse and Burro Herd Management Area

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