



PICEANCE BASIN

HMA

2018-2021 Utilization Data

Data Collected by Osborn Industries

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Introduction

The purpose of project is to develop and implement a comprehensive range monitoring program within the Piceance Basin Herd Management Area (HMA). This area contains sage grouse, mule deer, elk, and free-roaming horses. The area is also utilized for livestock grazing and energy production. Our goal is to monitor and report rangeland use for each of the six pastures located within the HMA.

Company Background

Osborn Industries, Troy Osborn and Katie McCollum-Parrott have extensive work history in rangeland management. Troy work for the United States Forest Service for 11 years, many as a Rangeland Management Specialist before starting Osborn Industries. He has a BS from the University of Wyoming in Rangeland Ecology and Watershed Management. Katie had several seasons working for Troy at the USFS, as a range technician, before she joined him at Osborn Industries as a lead Natural Resource Specialist. Katie also has a BS in Rangeland Ecology and Watershed Management from the University of Wyoming. The work performed by Osborn Industries is non-biased and all data is fairly collected.

Methods

Inspection of the HMA (Heard Management Area) begins in early April or when the weather allows access to the area. Many of the roads are not passable until then because of snow and mud. Each spring we revisit the Use Cages to ensure they are still standing after the winter months.

Contact with the permittees for each allotment begins in April and communications throughout the summer are attempted so we better understand season of use for all species in the HMA.

The objective is to measure use within each pasture. Between 2018 and 2020 we did this by closely monitoring cattle grazing rotations-entry and exit on an allotment. We collected data-LAM readings, clippings and on the ground observations, before the cattle enter an area, after they leave the area and once again at the end of the season to quantify how much the cattle influence utilization in the given areas. Because horses have access to the forage year-round and no grazing management is applied to the horses, cattle was the only thing we could follow across the allotments. Starting in 2020, at two locations, we installed 360-degree game cameras to capture type and number of species visiting an area. In 2021 we installed 12 additional cameras. These cameras give us more definitive proof of which species were in each area, when they used an area and overall amount of time they spent there. We still monitor cattle rotations, but the cameras help bolster our on the ground data. We do recognize there is a wildlife component on the range, however the amount of use contributed to Deer and Elk species is minimal.

Data Collection Techniques

In 2018 Range Cages, or utilization cage, were setup on multiple locations using suggested areas from the White River Field Office, Rangeland managers. Each site consists of three cages, measuring approximately 4x4 feet and set 40-70ft apart. The intent is to clip prior to cattle entering the area, after they leave an area, and at the end of the season. A hoop made of cable, with a circumference of 10.996ft, is used to collect a sample inside and outside of the cage. Vegetation clippings are placed in a paper bag, labeled, and allowed to dry until the end of the season. Weights are recorded in grams, which based on the size of the hoop converts to represent pounds of forage per acre. The inside clipping represents available forage at the time of clipping, the outside clipping represents forage remaining after use. When compared the difference represents "total use" at the site. Care was taken to visually compare interior and exterior clipping locations so a true comparison representing current site conditions are represented. For example, if the random location chosen for the exterior clip landed in a bare ground spot, a new location would be chosen. The weight measurements collected are compared to the clipping of the same date and site.

In 2018 Landscape Appearance Method (LAM) paced transects were placed in key areas across the HMA. Paced transects are quick to read and easy to reread throughout the season. An average of 25-30 ocular samples are taken along a 150-200ft long transect, from these samples a utilization score is calculated which represents the average percent utilization of forage available at the time of the reading. LAM locations were named by the date they are first read, followed by the total number installed for that day, e.g., a label of 060518-002 represents June 5, 2018, and the second LAM site established for the day. In 2019 LAMs were renamed and established as permanent LAM sites. Many of the LAM sites are re-visited multiple times in the season and for multiple years. Use patterns change on the landscape annually and as we better understand the land and those patterns, additional LAMs have been installed and some LAMs have not been re-read.

Midsummer 2018 we developed the Observational Matrix. This form easily compartmentalizes data such as number of horses, number of cattle, weed species observed etc., with the corresponding

location. We use this form whenever we make inspections to the HMA. The data recorded on this form is put into excel with the location data, so it can be queried, and mapped, if necessary, to help answer questions including species type and how many were in each location at a certain point in time. This form has been modified a couple times to improve ease of use, and in 2020 we developed an additional matrix form, Cage Matrix. This form is meant to be filled out whenever a cage is clipped and helps us capture specific information about the cage site area at the time of clipping.

In 2020 we installed two 360-degree game cameras. The camera was mounted to a steel post and rotates to capture movement in all directions. These cameras were placed inside two different cage sites to capture the species and durations of grazing. Prior to the cameras, professional judgement was used to note which species was most evident at the cage sites.

Data was collected approximately every two weeks on these cameras. The videos were then viewed by a technician and the following information was recorded for each site:

1. Date
2. Time
3. Species
4. Number of individuals
5. Number of "events" (number of times the camera was triggered by the same animals or event)

Care was taken to ensure no redundant counting of animals. Times were noted and significant time needed to pass before animals were counted as a separate event at the site. Most typically, many hours to days passed between events. Once this information was compiled it was summed by week to make it easier to display in chart form.

In 2021 fourteen 360-degree game cameras, including the original two from 2020, were installed. One camera was located at each cage site in following areas: North Greasewood, South Greasewood, Middle Greasewood, Middle Greasewood 8x8, Blair, Upper Barcus, 88, Lower Barcus, Pinto Mesa, Boxelder, Horse Park, Water Gulch, 24X and 84 Mesa. Again, the purpose of these cameras was to capture the species and durations of grazing.

Data was collected approximately every two weeks; the videos were then reviewed by a technician and the following information was recorded for each site:

1. Date
2. Time
3. Species
4. Number of individuals
5. Number of "events" (number of times the camera was triggered by the same animals or event)

Results

General Observations:

Several observations were made while working on this project. The first; differences in how cattle graze an area vs how horses graze an area. As rangeland managers, we have observed many cattle grazed areas throughout our careers. Cattle graze uniformly across an area, i.e., as cattle pass through an area they may remove 10% of the available forage and remove an additional 10% every pass across the same area until they are moved to a new pasture. Horses are just the opposite; they stop and remove 50% or more of the forage from a small, localized area, and an area 100ft away may not be grazed at all. This behavior is supported by our camera data. The second; horses travel much further from water than cattle will. Much of the forage available in these pastures is not near water, so the areas near water tend to be heavily overgrazed.

Greasewood Pasture 1

Middle Greasewood

This site is located to the south of CR 89 on an eluvial fan created by the drainage above it. It has a deeper soil making it a more productive site than others in the immediate area.

2021-No cattle were allotted to graze this drainage. Our camera data did catch 13 cattle in one event, in early May, but they appeared to be being pushed through the area, and there was no evidence of the animals staying in the area and grazing. A new 8x8 cage was

installed to replace the original Greasewood cages. In 2020 a stock tank was installed next to the original cages so the new 8x8 was placed at a different location away from the new water tanks to prevent skewed data. However, the water system was not turned on this year because the permittee did not graze this allotment. The new cage reported overuse in September with 87.5% use, LAM 072919-003 began reporting overuse in July, 64.77%, and reported 92.5% by November. LAMs 071519-005, and 006 showed less through July but reported overuse in September. Chart 1. further compares Cage utilization to number of cattle and horses documented by the camera.



Middle Greasewood 8x8 Vegetation Sampling				
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
4/23/2021 Winter use	100# per acre	0# per acre	100# per acre	100%
5/28/2021	100# per acre	70# per acre	30# per acre	30%
9/11/2021	40# per acre	5# per acre	35# per acre	87.5%
11/19/2021	150# per acre	10# per acre	140# per acre	93%

Chart 1. Middle Greasewood 8x8 camera was pulled for the season on 9/11/2021 to conserve budget, no cattle were allowed to enter the area, all use was attributed to horse and is confirmed with data gathered on the ground during the rest of the season. Lack of data between 8/15/21 and 9/11/21 was due to a camera failure.

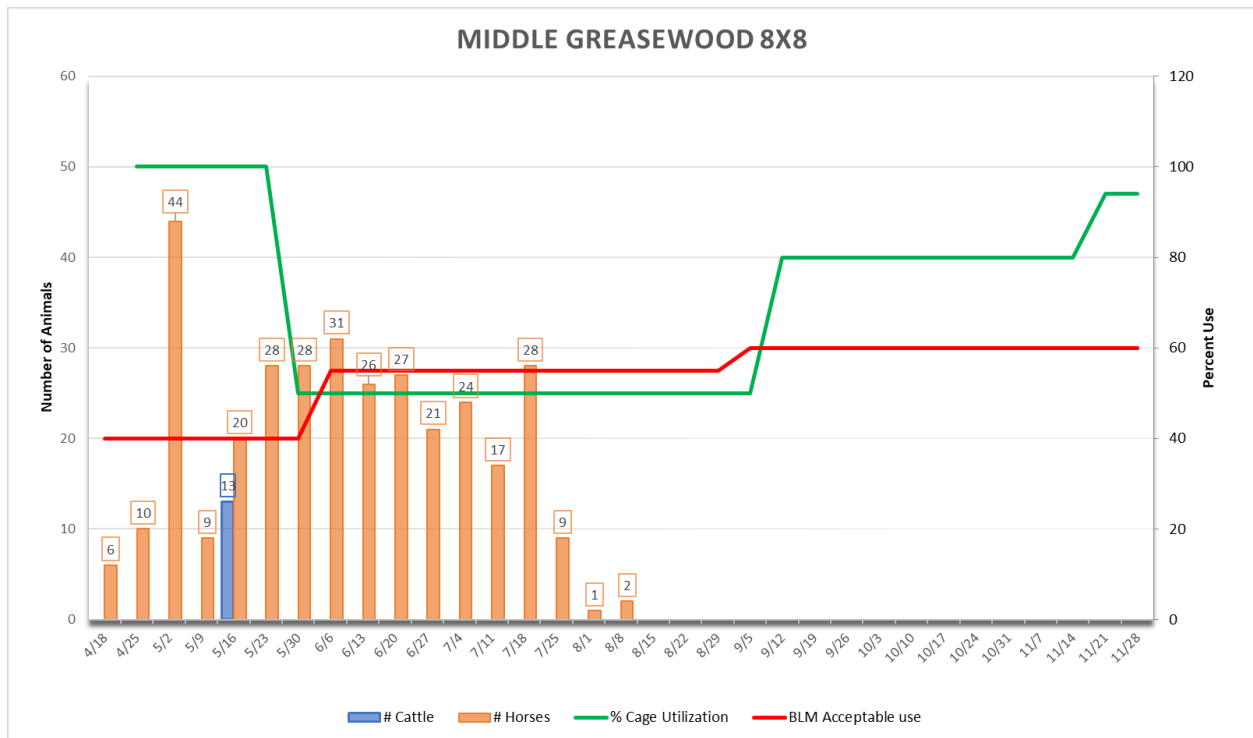
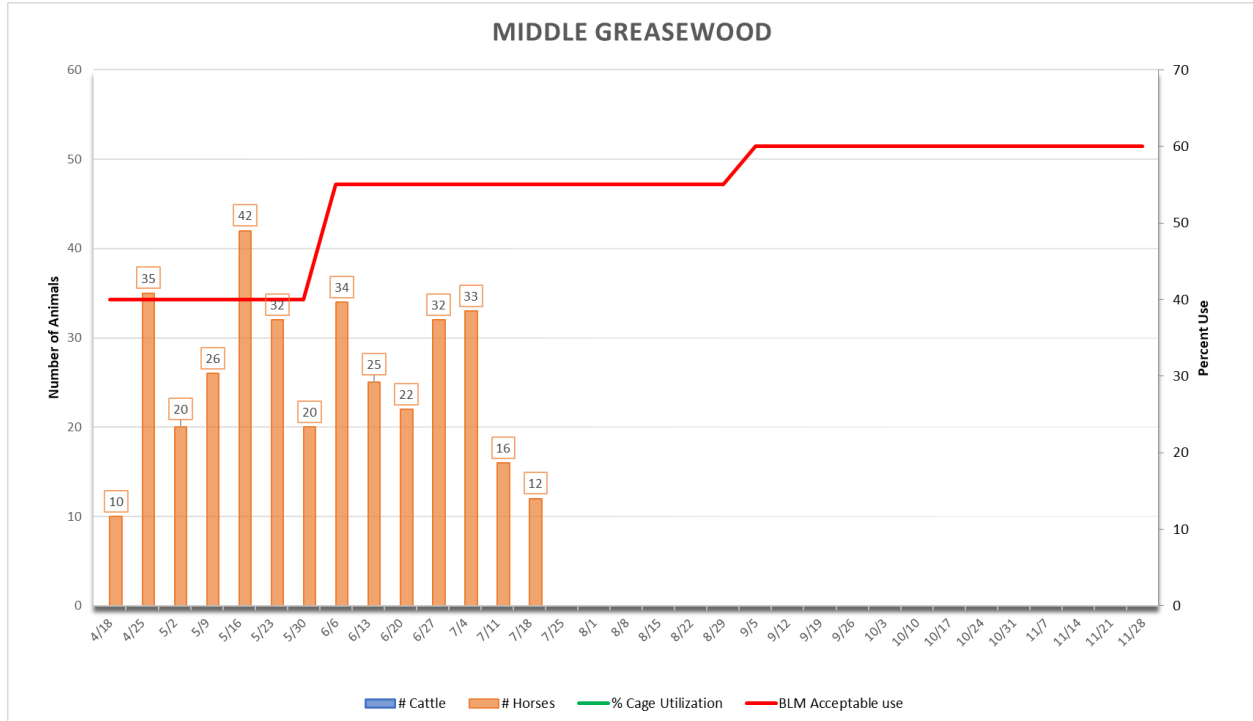


Chart 2.



**Though the original Middle Greasewood cages were not used for clipping data due to water tank installation, as described above, we did install an additional camera in one cage to capture animals in the area.

2020-Cattle use was not planned until late fall this year and did not actually go into the pasture until the week of 11/23/20 and came back out of Greasewood January 21st. This site was visited on 11/1/20, there were no horses present at the time but after surveying the area it was evident all use is attributed to horses. A water tank was installed adjacent to the cages and may attribute to the high use documented at the cage site, 98.48%. LAM 072919-003 reported 28.43%.

Middle Greasewood Vegetation Sampling				
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/7/2018	95# per acre	5# per acre	90# per acre	94.74%
05/7/2019	320# per acre	100# per acre	220# per acre	68.75%
10/23/2019	300# per acre	70# per acre	230# per acre	76.67%
11/1/2020	330# per acre	5# per acre	325# per acre	98.48%

2019-this site was read in early May because it showed signs of being grazed, 68.75% use was reported, this is over the allowable use for the area and time of year. This use was contributed to the horses in the area because the cattle were in the other drainage at the time and no evidence of cattle were documented in the area. The cage was clipped again in the fall and reported 76.67% use, again this is over the allowable use for area and time of year. Cattle were never documented in this drainage all summer; use is attributed to horses. There were several LAMs established in the area, but highest use reported was 56.03% for LAM 102319-002. Use of 56.03% is acceptable for the time of year the data was collected, 10/23/2019, but it is unclear when the use occurred. If it were spring use this percent would have been overuse.

2018-Cattle use is planned for fall only in this area. While we were gathering the clipping data, it was apparent the cattle were actively pushed through the area on their way back to the home ranch. Cattle had accumulated behind the cross fences at the mouth of the drainages. Predominant use was by horses throughout the grazing season. Only a few signs that cattle had spent much time at all in the area were observed.



North Greasewood

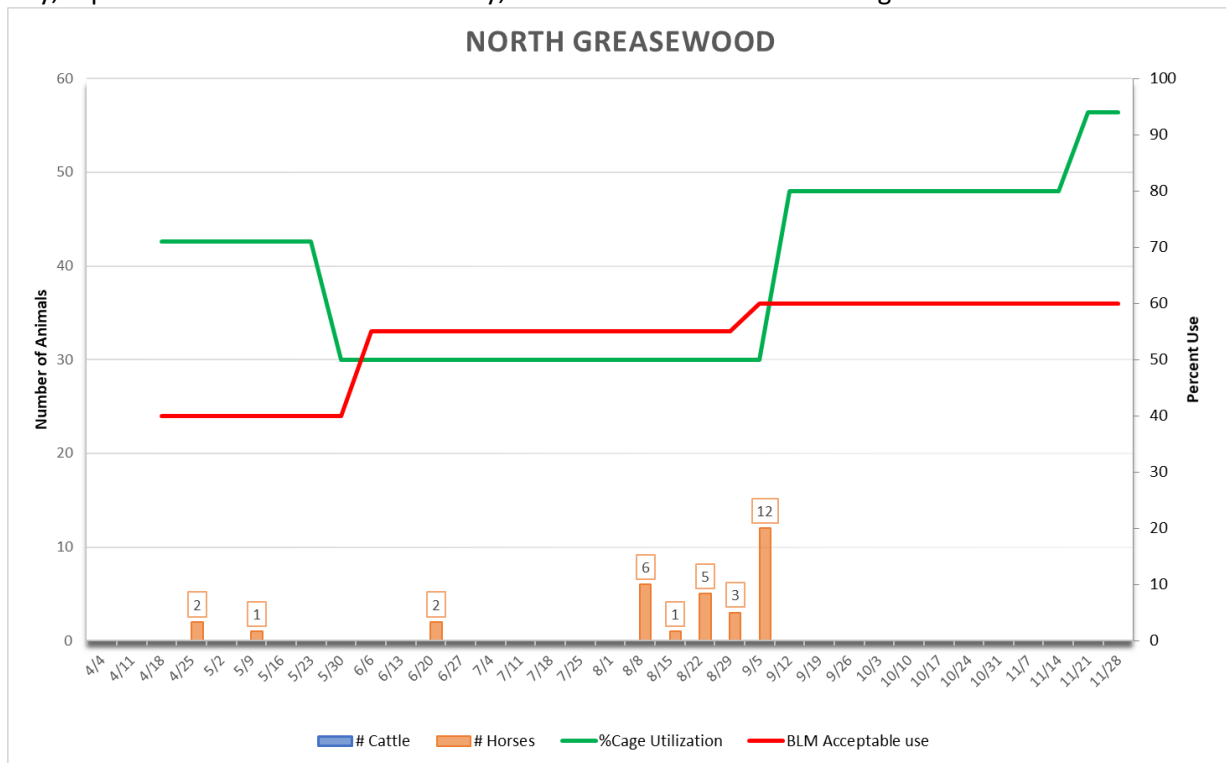
This site is in a very productive burn scar. The overall amount of forage available made this a great site to place a utilization cage.

2021-Again, no cattle were allotted to graze this drainage, no cattle were captured on the camera, and no evidence of cattle was found on the ground. This cage site began reporting overuse in May, 50%, and continued through the rest of the season, see table below. In November we were also able to capture regrowth on the cage site by

reclipping the September plot. This clipping reported an additional 60lbs/acre of regrowth, and total remaining regrowth forage was 0lbs/acre. See 'Charts' for grazing animal and cage utilization comparison. LAM 102319-001 reported overuse in September and use stayed relatively stagnant until through the November readings. LAMs 111720-001 and 002 are in the next drainage over, near our entrance to the Blair unit. They reported 84.81% and 48.46% use respectively in November.

North Greasewood Vegetation Sampling				
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/10/2018				No use
5/7/2019	610# per acre	160# per acre	450# per acre	73.77%
11/1/2020	360# per acre	430# per acre	-70# per acre	0%
4/24/2021 winter use	70# per acre	20# per acre	50# per acre	71%
5/28/2021	100# per acre	50# per acre	50# per acre	50%
9/11/2021	150# per acre	30# per acre	120# per acre	80%
11/19/2021	180# per acre	10# per acre	170# per acre	94%
11/19/2021 REGROWTH	60# per acre	0# per acre	60# per acre	100%

Chart 3. North Greasewood camera was pulled for the season on 9/11/2021 to conserve budget, no cattle were allowed to enter the area, all use was attributed to horse and is confirmed with data gathered on the ground during the rest of the season. Lack of data in the chart-mostly during May and July, represent no Horse or Cattle activity, the camera was still functioning.



2020-on 11/1/2020 the interior and exterior of the cages appeared very similar with very minimal grazing at the cage sites. The actual weights, shown above, demonstrates the variance of available vegetation in the area resulting in a negative percent total use, based on ocular observations there is very little to negligible use at this site. There were a few horses in the area at the time of our visit, but we were unable to identify if they were responsible for the light grazing in the area. Cattle did not move into the area until week of 11/23/20.

2019-We toured the area early May clipping the cages. Because the cages had been established the year prior and not clipped due to lack of use, the total available pounds per acre is relatively high because of all the littler left over the entire area from previous year. The spring total use we estimate was due to winter grazing by horses because after this inspection date, very little use occurs in the area. The lack of use is documented by our LAM locations during the 2019 summer. There are three LAMs in the area, all show very light to negligible use, and we were unable to define which species used the area (no horse or cattle evidence).

2018-On 7/27/2018 LAM 072718-001 was established and reported 2.5% use, we were unable to identify the species. Cattle do not use this area until late fall, so we did not revisit this site until then. On 11/10/2018 we visited the site before the cattle entered to capture summer horse use. However, when we arrived at the site there was no use to document, so we did not clip the cage. We then re-read LAM 072718-001 which reported 13.87% use, again were unable to identify which animal used this area. There were a few cattle in the area, but overall, the entire site showed little to no utilization.

South Greasewood

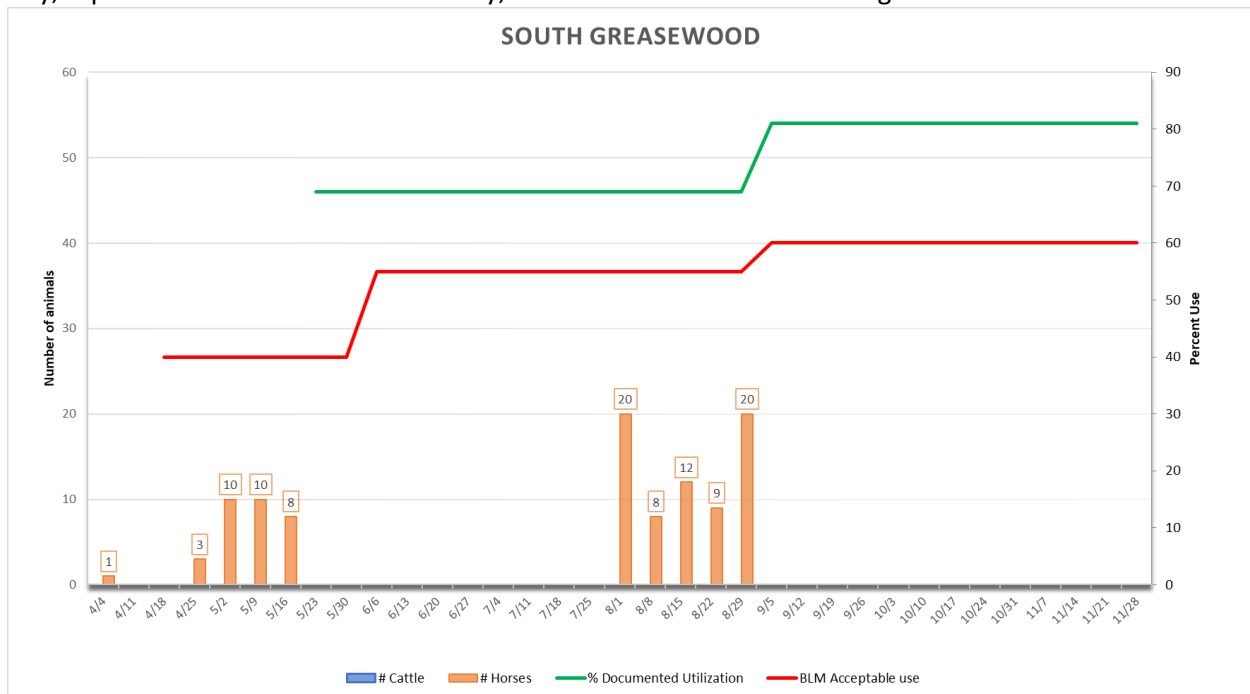
This site is located along the east fork of Grease Wood.

2021- No cattle were permitted to graze this allotment this season. The camera did not document any cows and no evidence of cows was found on the ground. In September the cage clipping reported 81% use. The site was visited again in November and the area was not worth clipping-100% use. LAM 0715/19-010 reported overuse in September but the other LAMs reported allowable use (under 60%). In November, LAMs 071519-007, 008, 009, 010 and LAM 02919-002 reported 91 %, 90.80%, 96%, 95%, and 94% use respectively.



South Greasewood Vegetation Sampling				
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/06/2018	205# per acre	75# per acre	130# per acre	63.41%
5/7/2019				No use
10/23/2019	300# per acre	90# per acre	210# per acre	70%
11/1/2020	400# per acre	20# per acre	380# per acre	95%
4/23/2021 Winter use	30# per acre	0# per acre	30# per acre	100%
5/28/2021	160# per acre	50# per acre	110# per acre	69%
9/11/2021	260# per acre	50# per acre	210# per acre	81%

Chart 4. South Greasewood camera was pulled for the season on 9/11/2021 to conserve budget, no cattle were allowed to enter the area, all use was attributed to horse and is confirmed with data gathered on the ground during the rest of the season. Lack of data in the chart-mostly during June and July, represent no Horse or Cattle activity, the camera was still functioning.



2020-there were no cattle or any signs of cattle in the area at the time of clipping, on 11/1/20. Use reported by cage clippings was 95%. Three LAMs in the area were also read on 11/1/20: LAM 071519-007, 009 and 010 reporting 42.5%, 85.17% and 93.71% use, respectively. Because the cattle did not enter the pasture until the week of 11/23/20 all data collected on 11/1/20 represents only horse use. LAM 071519-007 is very close to the cage sight but is uphill and may account for less use than the cage site.

2019-The cage site was visited in early May prior to cattle grazing in the area. There were no signs of grazing at the cages at the time, so they were not clipped. Cattle were present in the allotment until the first of August. Upon every inspection, cattle had been concentrated in the bottom, below the old cabins. LAMs 071519-009 and 010, established and read on 7/15/2019 reported 80.80% and 71.2% use, respectively. 80.8% and 71.2% represent overuse for the area and time of year, Max 60% use is allowed for this time of year. The excessive use caused by cattle made it impossible to calculate horse use post cattle grazing. Utilization on the other monitoring sites within the allotment gathered good data. The cage was clipped on 10/23/2019 and reported 70% use, which is overuse for the area. Use on this site was also attributed to horses and cattle. It is also worthy to note the LAMs established and read in the fall of 2019: LAM 102319-002 and 111519-003 reported 56.03% and 50% use, respectively. These levels of use represent moderate use. The maximum allowable use for the time of year is 60%. We do not know when the use occurred, if this use occurred before 6/15/2019 this would have been considered overuse. All use on these two sites is from horses.

2018-This area has heavy horse sign throughout. It was evident the cattle passed through this area. They had gathered behind a drift fence just below where the above photo was taken. The picture shows a small enclosure where two canyons meet. The heavy use on the outside of the fence shown in the photo can be contributed to the cattle. The cattle that were actively trailing thought the area had been held

behind a cross fence in the drainage and caused a small 2-3-acre area to be heavily used. Overall use in the area is attributed to horse and cattle, we were unable to identify which species used specific areas.

Square S Pasture 1

Horse Park

This cage site is located behind a natural gas valve pad.

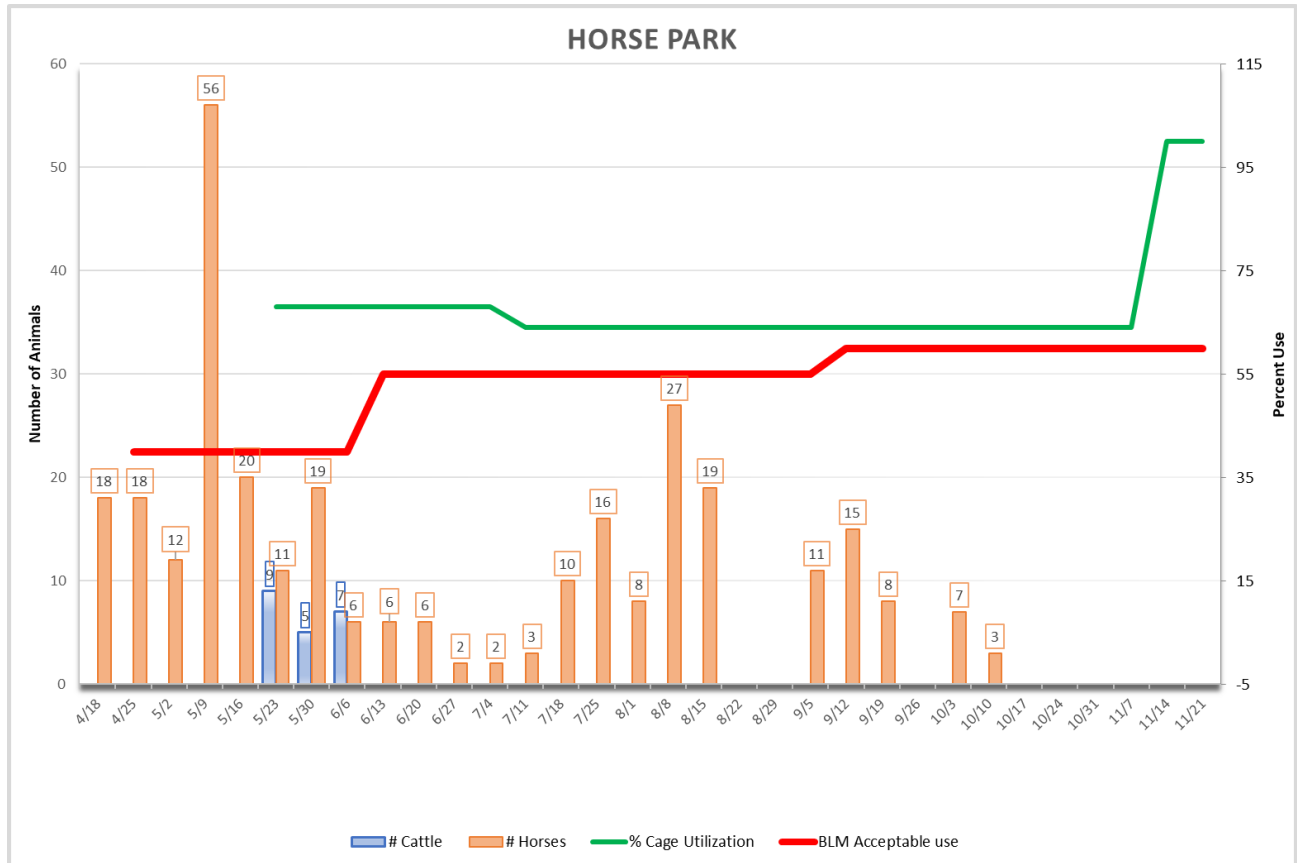
2021-The first cage clipping on May 28th reported 68% use and continued to show heavy use for the remainder of the season. Cattle were permitted to graze this allotment, and the camera first documented cattle on 5/23/21. Chart



5. below, further compares number of cattle and horses to percent use captured by cage clipping data. Cage data continued to report overuse in the Horse Park area for the rest of the year. LAM data for the area began reporting overuse June for LAM-073019-003 with 43.45% and in July with LAM 04/2420-002, 51.65%, but heaviest use in the area did not occur until the September and November readings.

Horse Park Vegetation Sampling				
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/4/2018				No Use
11/11/2019	240# per acre	60# per acre	180# per acre	75%
4/27/2020	100# per acre	20# per acre	80# per acre (winter use)	80%
11/5/2020	140# per acre	10# per acre	130# per acre	92.86%
5/28/2021	190# per acre	60# per acre	130# per acre	68%
7/8/2021	260# per acre	90# per acre	170# per acre	65%
11/21/2021	380# per acre	0# per acre	380# per acre	100%

Chart 5. Horse Park camera was pulled for the season on 11/21/21. The camera failed once sometime after 11/4/21, all other spaces in the chart represent no Horse or Cattle activity.



2020-On 4/27/20 the site was visited to clip the cage and read LAM transects. No cattle or evidence of cattle was found in this area. The immediate cage area as well as surrounding areas shows heavy horse activity and complete search¹ of the areas, the cage clipping reported 80% use. This high level of use and number animals were documented throughout the season, the clipping on 11/5/20 reported 92.86% use. All vegetative use is attributed to horse. There are two LAMs in this area. LAM 042720-002 is located across from the cage site and reported 10.83% use on 4/27/20 and 43.87% use on 11/5/20. LAM 073019-003 is located about ½ mile from the cage site and reported 10.14% use on 4/27/20 and 22.97% use on 11/5/20. The variance between use reported by the cage data and LAM data could be attributed to distance and the patchy grazing patterns of horses.

2019-during the grazing season, this area was to receive no cattle grazing. No cattle were ever documented near this cage site and no evidence was found that would suggest any cattle were ever in the area during the 2019 season. The cage was only clipped once on 11/11/2019 to capture horse use for the season; 75%. This is overuse for the area and time of year. The only LAMs in the area 073019-002 and 003, and LAM 110519-001 report light use, use is attributed to horses or undefinable.

2018-On 5/11/18 LAM 051118-001 was established and reported little to no use. When the LAM was re-read on 11/4/2018 light use was reported and there were no animal signs to attribute use. The site was not clipped this fall because the entire area, both inside and outside of the cages, showed very little

¹ Complete search-Term from LAM (Landscape appearance Method) form meaning an entire area has been completely, and typically uniformly, used by grazing species. Indication of heavy use.

growth. There are many species scattered throughout the area which are native to the ecosystem and should produce more forage per acre than they did in 2018. The cages were moved to a new location with the hopes the 2019 season bringing more precipitation and more plant growth. Overall, this site receives heavy horse traffic documented by the horse manure (and lack of cattle or wildlife manure). In addition to moving the cages we also established LAM 110418-001 to help capture use in the area, 47.54% use was reported.

Boxelder

This cage is in the bottom of a tight canyon. The animals use this as a corridor when traveling between grazing areas. There is also a fence line that runs along the bottom of the drainage.

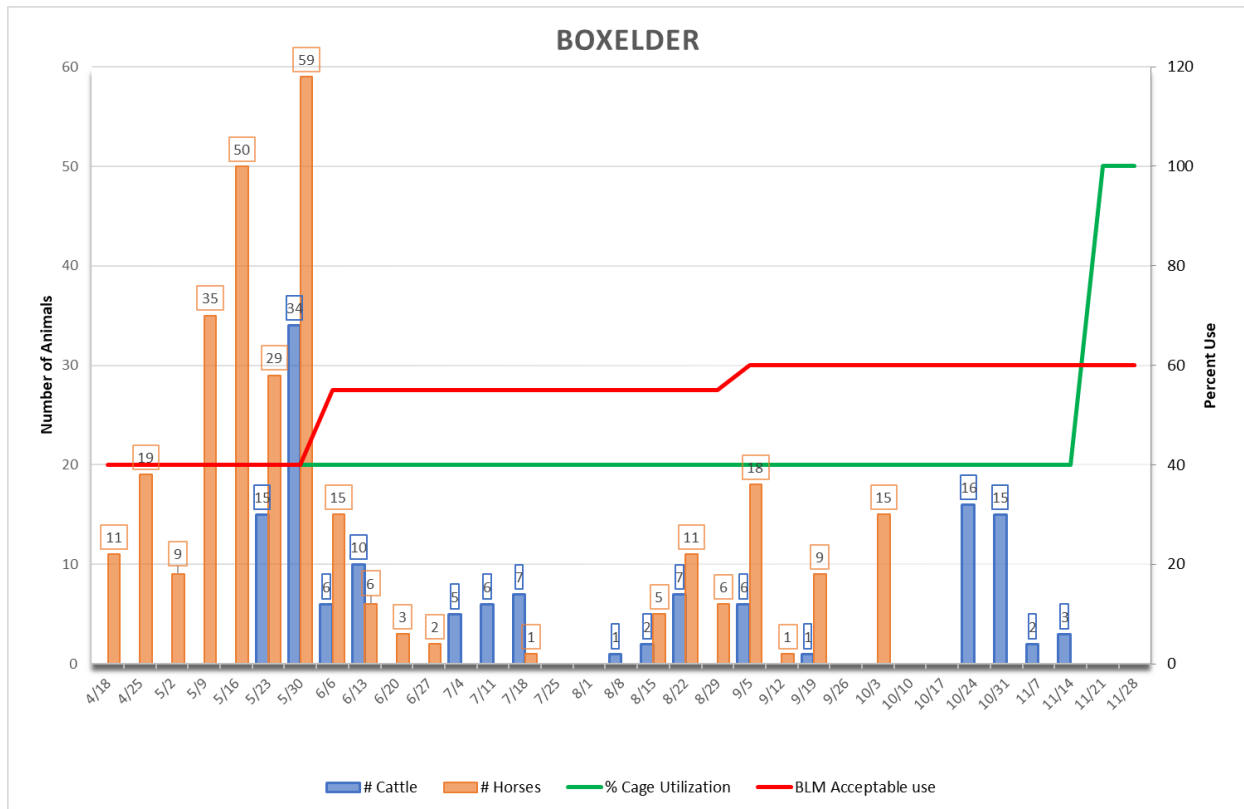


2021-Cattle were permitted to graze this allotment this year, and cattle are still able to cross boundary fence between

Square S and Yellow Creek Pasture 1, so there is no definitive break between cattle and horse use in this allotment, or between the cattle allotted to Square S and Yellow Creek Pasture 1. Chart 6. for Boxelder camera data does display the number of cattle and horse documented throughout the season. Clippings from May show the Boxelder site was still within the Allowable Use range. The road blew out after a storm in July, preventing any clippings until November. The surrounding LAMs could still be read: LAM 081620-003 reported overuse in June and by November was reporting 95.92% use. LAM 051118-003 reported overuse, 71.35%, in July and by September reported 94.11% use, see table in Appendix for more information.

	Box Elder Vegetation Sampling			
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/4/2018	385# per acre	125# per acre	260# per acre	67.53%
11/11/2019	410# Per Acre	160# per acre	250# per acre	60.98%
11/5/2020	750# per acre	290# per acre	460# per acre	61.33%
5/28/2021	200# per acre	120# per acre	80# per acre	40%
11/20/2021	140# per acre	0# per acre	140# per acre	100%

Chart 6. Boxelder camera was pulled for the season on 11/21/21. The spaces in the chart represent no Horse or Cattle activity, the camera was still functioning.



2020-On 4/27/20 there was very little signs of travel along the road. There was no use near the cages, so the cages were not clipped. However, the LAMs closer to the bottom of the drainage were read: LAM 042720-001 and LAM 073019-001 represented 10.46% use and 4.44% respectively. At the time of clipping in November heavy horse and cattle use could be observed on both sides of the pasture boundary fence (Square S Pasture and Yellow Creek Pasture 1 boundary) throughout the drainage and on both sides of the cattle guard in the bottom, with the heaviest use near the bottom of the drainage. This includes the area where the cages are located. Cattle are not allotted in the Square S Pasture, the cattle from Yellow Creek Pasture 1 are crossing the fence and using Square S pasture. Because cattle are not allotted to be in this area, there is no clear date when the cattle moved in or how many cattle were in this area, so we have no clear delineation between cattle and horse use. The cage clipping reported 61.33% use, LAM 042720-001 reported 27.71% use and LAM 073019-001 reported 75% use.

2019-Cattle were not planned to be in the cage area for this season. All use data that was planned to be collected on the permit was going to be directly correlated to horse use. Unfortunately, when Katie arrived at this cage site, the cattle had traveled through the area on the wrong side of the fence. Trampling and grazing caused a total loss of data at this site. Cattle trailing across this allotment was confined to this location only and was not widespread because of the drainage. Cattle that were able to cross the fence above this location naturally trailed right through this site on their way off the allotment. The cage reported 60.98% use, attributed to horse and cattle. LAMs 073019-002 and 003, and LAM 110519-001 are not located near the cage site, they all report light use, well within the allowable amount and use is attributed to horses or undefinable.

2018- LAM 051118-003 was established on 5/11/2018 and reported light use which was attributed to horse use. On 11/4/2018 we returned to the site to clip the cages and re-read LAM 051118-003. The clipping data represents the entire grazing season's worth of use. The horses and cattle entered the area before a baseline amount could be read for the 2018 season. On 11/4/2018 LAM 051118-003 reported 51% use, this use was attributed to horses and cattle.

Wolf

2019- this site again received no grazing.
The cages were removed.

2018-The vegetation at this location was not adequate for a sample. The sample inside the cage was one small grass species and no other grass could be found in the adjacent area. Cattle tracks were documented passing through the area, but no signs of use.

This site in conjunction with the Horse Park site need to be studied to understand the dynamics of the area.



Yellow Creek Pasture 1

South Water Canyon

This cage is located behind the old man camp. The cage site is on an old, reclaimed site. The sage brush in the immediate area is dense and very tall.

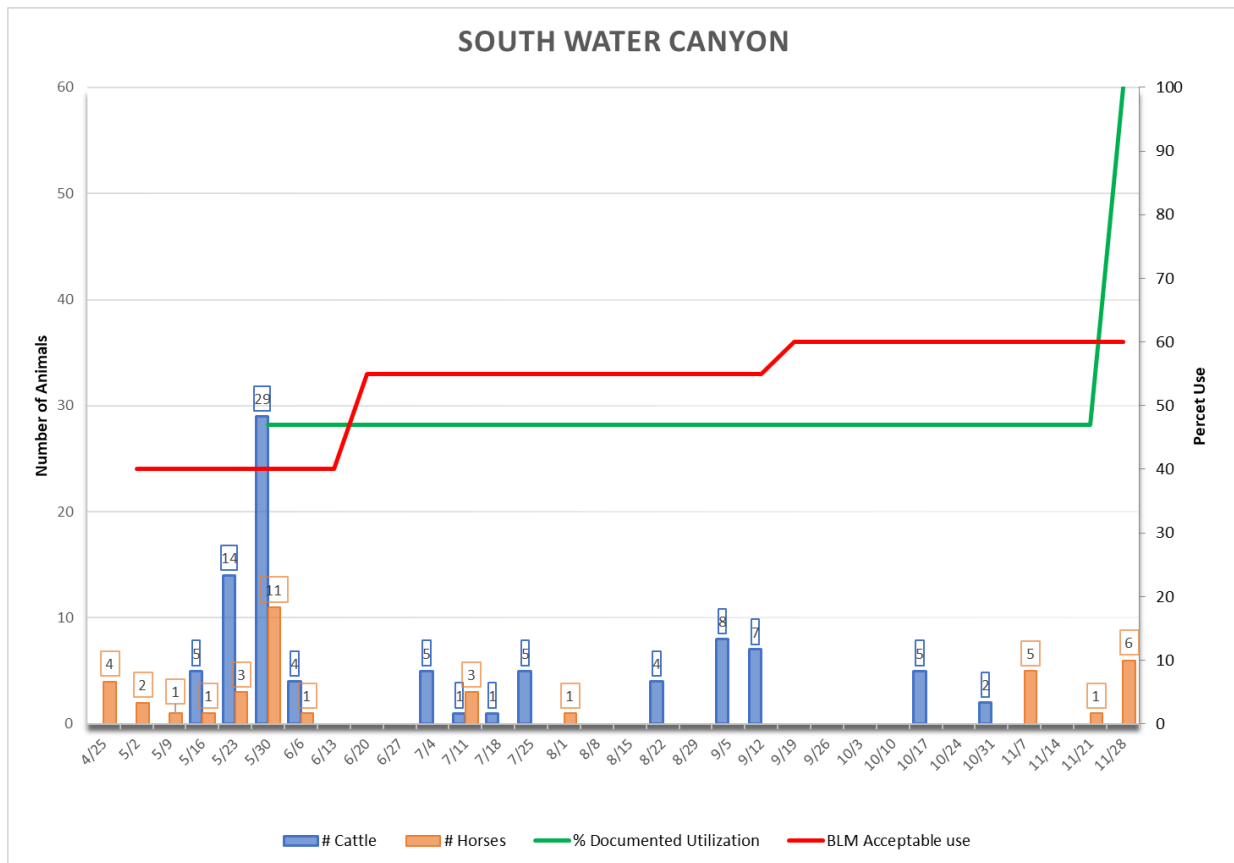


2021-Cattle were permitted to graze this allotment. See Chart 7. for documentation of cattle and horse numbers for the season. The cages were first clipped on 5/28/21 reporting 47.6% use. Because of access issues we were unable to enter the site again

until December, at this time the cage clipping reported 100% use. Many of our LAMs are outside the restricted area (where the cages are located) so we were able to capture use data this way. We began seeing some areas of higher use in our July readings, but no overuse until our September readings i.e., LAM 070220-001, 073019-004 and 081518-004. The November and December readings reported overuse at almost all sites, see the South Water Canyon table in the Appendix for more data.

	South Water Canyon Vegetation Sampling			
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/14/2018	465# per acre	0# per acre	465# per acre	100%
11/8/2019	520# per acre	370# per acre	150# per acre	28.85%
4/27/2020	460# per acre	120# per acre	340# per acre	73.91%
5/27/2020	820# per acre	110# per acre	710# per acre	86.59%
7/2/2020	1170# per acre	5# per acre	1165# per acre	99.57%
5/28/2021	210# per acre	110# per acre	100# per acre	47.6%
12/8/2021	340# per acre	0# per acre	340# per acre	100%

Chart 7. South Water Canyon camera was pulled for the season on 12/8/21. There was one possible camera fail in mid to late June. The other spaces in the chart represent no Horse or Cattle activity, the camera was still functioning.



2020- This site was first visited on 4/27/20, there were several fresh signs of horse-grazing and trampling. We clipped a cage and it reported 73.91% use. Another cage clipping was done on 5/27/2020 reporting 86.59% use, and again on 7/2/2020 reporting 99.57% use. LAM 070220-001 was also established on 7/2 and reported 81.1% use. All use at the cage site and in the corresponding draw was from horse, there was no evidence of cattle until later. LAM 073019-004, at the mouth of the cage draw in the same draw as the Man Camp, reported 8.82% use on 5/27/2020, all horse use. We did one more reading of LAM 073019-004 in November to capture cattle and horse use. This reading reported 77.45% use. LAM 073019-001 and 042720-001 are located on the edge of Yellow Creek Pasture 1 and Square S Pasture 1. On 11/5/2020 these LAMs reported 75% and 27.71% use, respectively. Use was attributed to cattle and horses.

2019 Constant access to this site was difficult because of the time lag in communicating with the private landowner, followed by access during hunting season, which is also when the cattle are leaving the area. Our data this season can only represent total use of the site and cannot be extrapolated. On 11/8/2019 28.85% use was documented from the cage clipping. LAM 073019-001 and 004 were read in July and reported allowable use of 28.36% and 28.24% respectively. When the cages were read on 11/11/2019 they reported 69.52% and 62.13%, overuse for the area. Cattle and horse are both attributed to this use.

2018-The cage data for this site showed 100% use. We were unable to clip outside of the cage because the only forage left was protected at the base of the sage brush. This area showed heavy signs of use from both cattle and horses. The proximity to water makes this a heavily used corridor for animals traveling from one site to another. Several LAMs were established between July and August, they were scattered

over the pasture. The cattle and horses do not seem to mix too much, we only documented one other area away from the cage site with cattle and horse evidence, but maximum use was only 13%.

Yellow Creek Pasture 2

24X

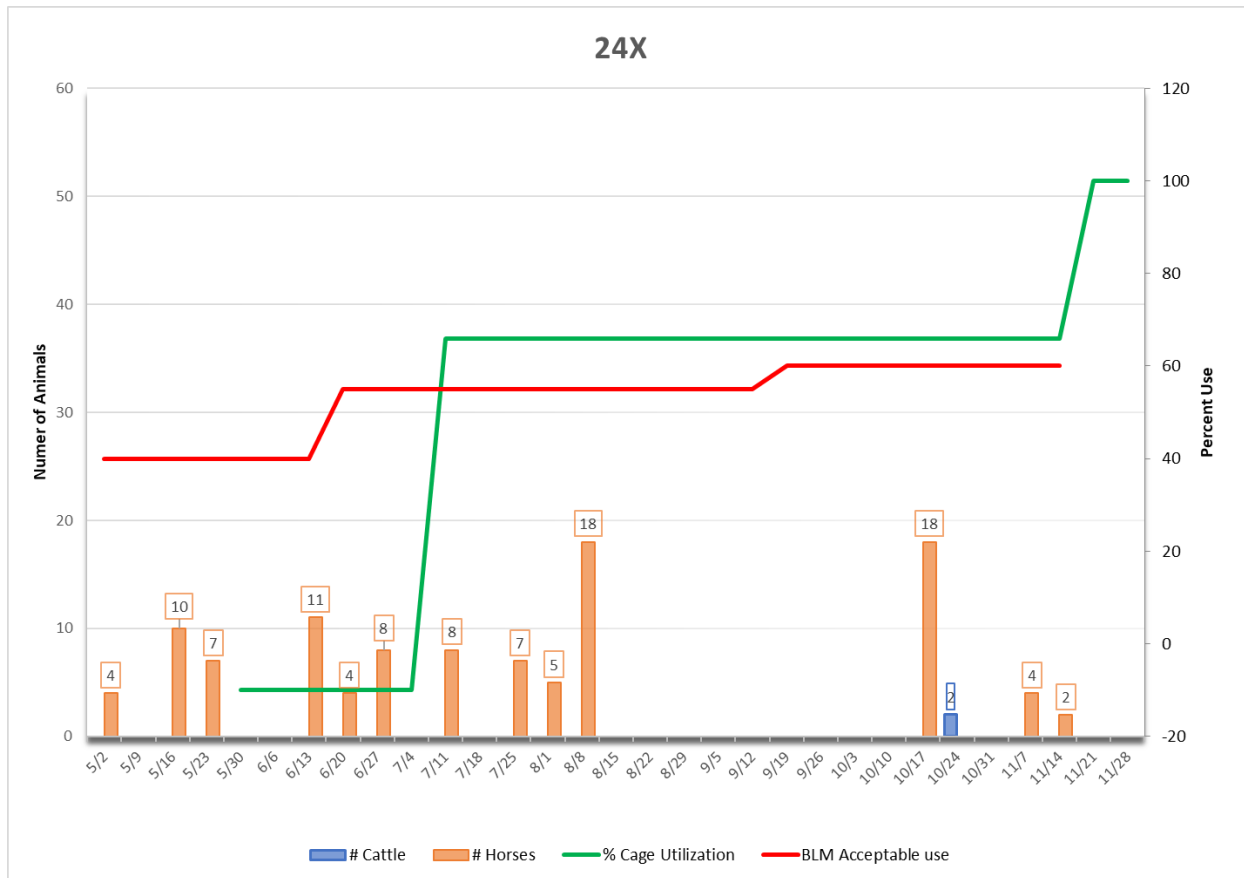
24x is located near the 24X road on a small ridgeline between two basins. Horses are frequently seen in the area at any time during the season. Cattle gather here in the later part of the spring and throughout the summer. Proximity to water is unknown. The grazing animals did not seem to bed in the immediate area but rather graze back and forth across the site.



2021-Cattle are permitted to graze this area. Chart 8. only two cows are documented in the camera data for the season. The cage clippings show no use until the July clipping, 60%, and then 100% use in the November clipping. The LAM data, see Appendix, also reports light use until the July readings, with the highest use being reported in the November readings.

	24X Vegetation Sampling			
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
6/2/2018	215 # per acre	60# per acre	155 # per acre	72.09%
11/14/2018	145 # per acre	55# per acre	90 # per acre	62.07%
11/5/2019	100# per acre	80# per acre	20# per acre	20%
5/26/2020				0%
12/3/2020	50# per acre	5# per acre	45# per acre	90%
5/28/2021	20# per acre	50# per acre	0# per acre	-250%
7/8/2021	60# per acre	20# per acre	40# per acre	60%
11/21/2021	80# per acre	0# per acre	80# per acre	100%

Chart 8. 24X camera was pulled for the season on 11/21/21. The spaces in the chart represent no Horse or Cattle activity, the camera was still functioning.



2020-The cage site was first visited on 5/26/2020 but there was no use in the area, so the cage was not clipped. Throughout the summer some cattle have been documented in the 24X cage area, typically near the cattle guard on 24X road, but there are no signs of cattle near the cages. Horses were also documented in the area and more specifically near the cages. Because there were no cattle use near the cages they were not clipped until 12/3/2020 and reported 90% use.

2019-During this season, no cattle were documented in the vicinity of the cage site. We know the cattle had to have passed through the area on their way to summer and fall grazing, however, no cattle sign was documented near the cages. Horses were seen and documented throughout the summer at all locations along 24x, but only 20% use was documented by the cages on 11/5/2019. No LAMs were read in this area this year.

2018-Cattle were first documented in this area June 1. Horses were documented throughout the entire season. The 24X cage was clipped on 6/2/2018, though this was after the cattle had entered the area there was no sign of cattle or cattle use near the cages and we can confidently attribute the documented 72.09% use to horses. On 8/15/2018 LAM 081518-002 was established and reported 2.5% use. This LAM is located about 2 miles from the cage site, there were no horse or cattle signs in the area, so species is undefinable. The LAM was re-read on 11/10/2018 reporting 7.6% use. There were some horse signs in the area, and we attributed slight increase in use to horses. Another clipping was conducted on 11/14/2018 reporting 62.07% use. Even with cattle in the area the cages reported a slight decrease in use. This percent use could be attributed to the variance of available forage at each cage site, and overall is not a huge marginal difference from the spring reading. Cattle do not seem to be a huge influence in this area.

84 Mesa

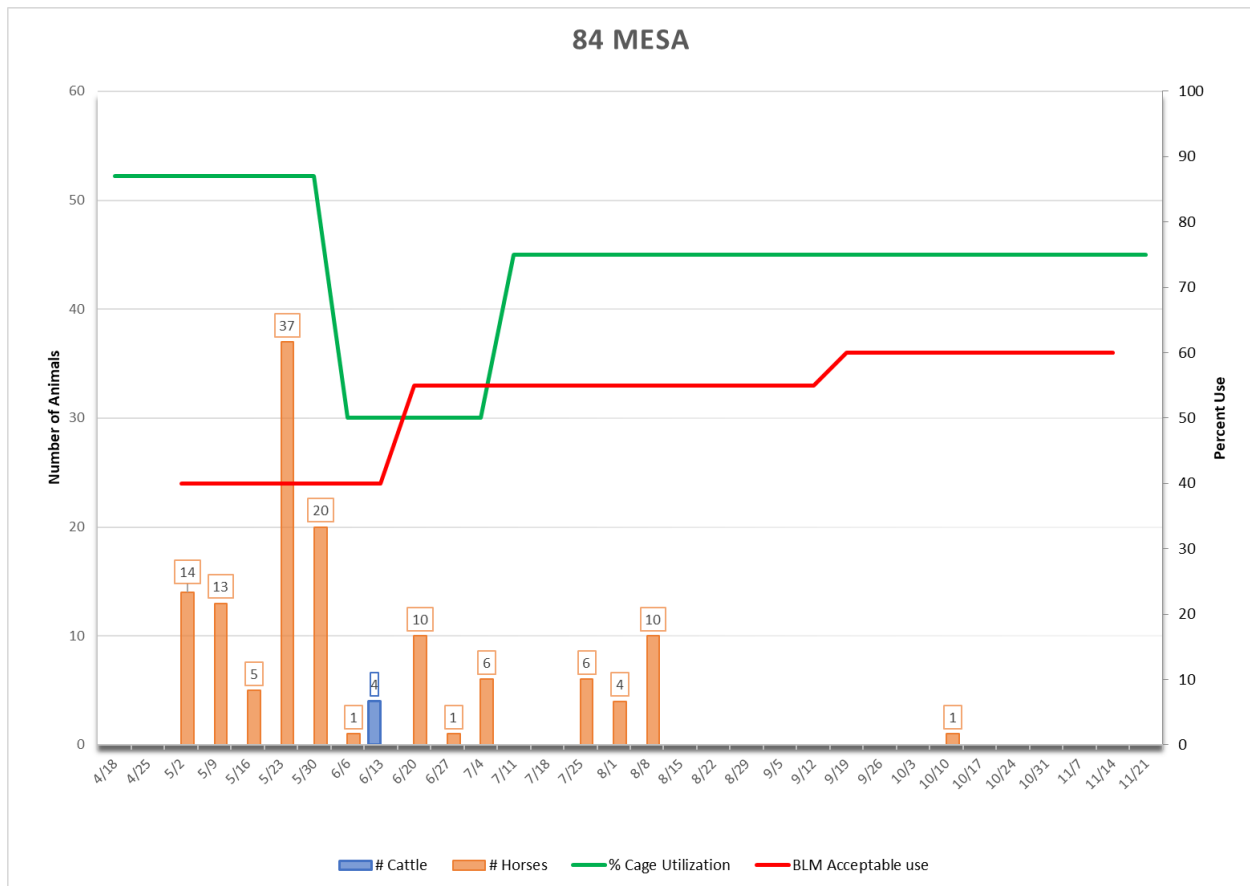
This cage is located on a ridge between two valleys. Distance to water is unknown.

2021-Cattle grazing in the 24X area are also permitted on the 84 Mesa area. Like 24X, only a few cattle were documented by the camera. See Chart 9. below. The cage clipping on 5/28/21 reported overuse, 50%. The LAM data for this area also reports light use during the summer months, and heavier use in November, see 24X and 84 Mesa table.



	84 Mesa Vegetation Sampling			
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
06/02/2018	295# per acre	185# per acre	110# per acre	37.29%
11/14/2018	185# per acre	40# per acre	145# per acre	78.38%
11/5/2019	220# per acre	50# per acre	170# per acre	77.27%
12/3/2020	370# per acre	5# per acre	365# per acre	98.65%
4/16/2021 Winter use	160# per acre	20# per acre	140# per acre	87.5%
5/28/2021	120# per acre	60# per acre	60# per acre	50%
7/8/2021	200# per acre	50# per acre	150# per acre	75%

Chart 9. 84 Mesa camera was pulled for the season on 11/21/21. The camera failed sometime after 10/23/21. All other spaces in the chart represent no Horse or Cattle activity, the camera was still functioning.



2020-Horses were documented throughout the summer, but there were never signs of cattle near the cage or LAM sites. LAM 081620-004 and 005 were established in August and reported 57.16% and 28.5% use, respectively. The cage was clipped on 12/3/2020 capturing horse use for the entire season, 98.65%. LAMs 081620-004 and 005 were read again on 3/21/2021 reporting 72.7% and 82.75% use, respectively. This reading captures the winter use in the area, no new vegetation was included in the ocular reading. There are no cattle in the area over the winter, so all winter use is attributed to horses.

2019- this site was predominantly horse use. Very little cattle evidence was documented in the area. Only a fall clipping was taken, representing the amount of forage the horses used throughout the 2019 grazing season: 77.27%. No LAMs were read in this area during the year.

2018-Cattle and horse use were evident in the immediate area around the cages. This is one of only a few cages that we were able to capture horse vs cattle data. On 5/11/2018 LAM 051119-004 was established and reported 2.9% use. There were a few horse signs in the area. The first clipping on 6/2/2018 reported 37.29% use. This use is attributed to horses, cattle had not entered this area yet. The second clipping on 11/14/2018 reported 78.38% and captures horse and cattle use for the remainder of the year.

Yellow Creek Pasture 3

Barcus

Barcus cages are located on a side hill west of the county road 88. They are located approximately 1.5 miles from water along the county road.

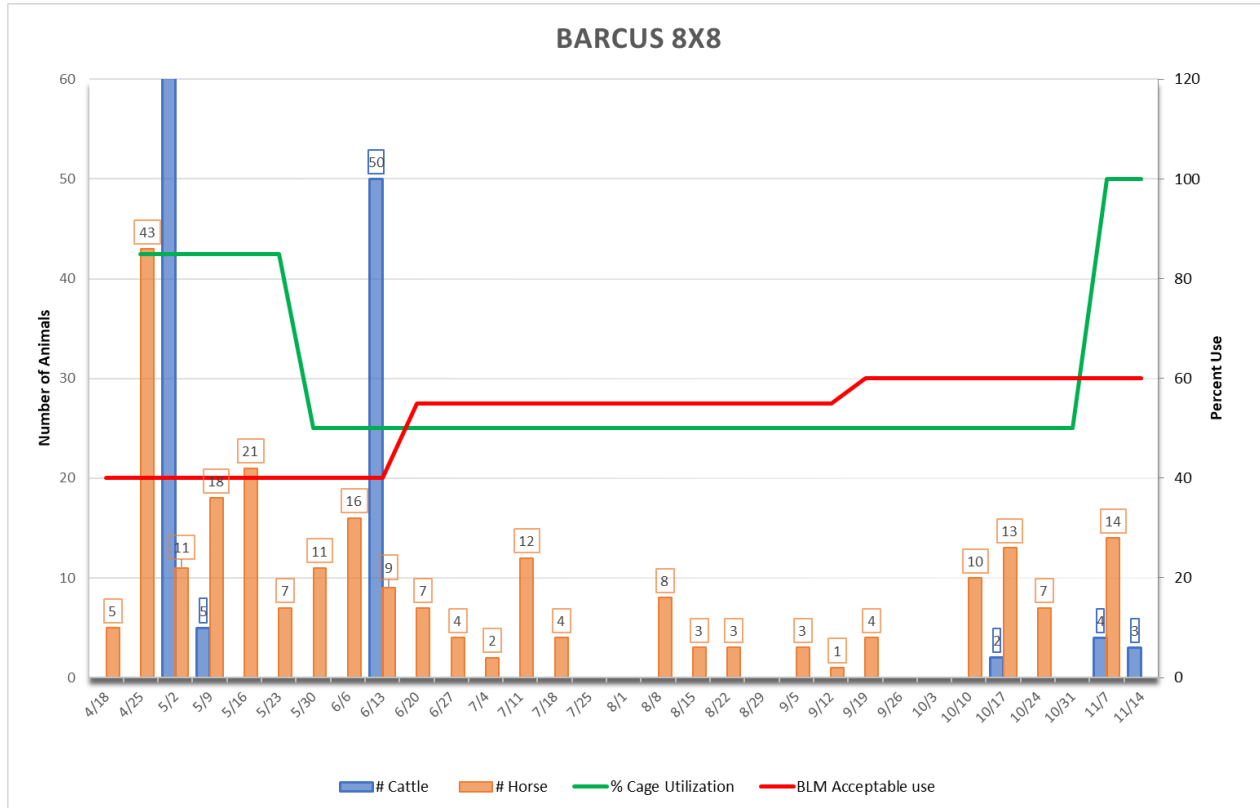


2021-No data was collected at the original Barcus cages this season, there is very little vegetation growing here, and only 1 cage was intact this spring. Better data is collected from the Barcus 8x8 cage located just down the hill. The

Barcus 8x8 cage was first clipped on 5/28/21 and reported 63.6% use, the LAM data did not document overuse until September. LAM readings throughout the Piceance area this season, and particularly in this area, was difficult this summer-as explained in the Analysis document. The November readings for cage clipping and LAM data both show high levels of overuse. Cattle were permitted to graze this allotment. Chart 10. demonstrates use from the cage data vs. animals in the area.

	Barcus 8x8 Sampling			
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/4/2020	350# per acre	5# per acre	345# per acre	98.57%
4/24/2021 Winter use	80# per acre	50# per acre	30# per acre	37.5%
5/28/2021	110# per acre	40# per acre	70# per acre	63.6%
11/18/2021	170# per acre	0# per acre	170# per acre	100%

Chart 10. Barcus 8x8 camera was pulled for the season on 11/18/21. The spaces in the chart represent no Horse or Cattle activity, the camera was still functioning.



2020- the original set of cages on Barcus were visited on 4/29/2020 but were not clipped because there was no use or signs of horses or cattle. Barcus 8x8 cage was also installed in the early spring. It is located on the East side of the road (the original Barcus cages are on the west). The purpose of this cage is to capture cattle use in the bottom because the upper cages consistently show no signs of cattle. LAMs 051119-003 and LAM 060619-003 are in the immediate area of the Barcus 8x8 cage and report only horse use until early May, when the cattle enter the area. Data from late May reports cattle and evidence of grazing, and by late June, cattle are well out of the area, LAM 051119-003 reported 75.25% use from cattle and horses, this is overuse of the area. LAM 051119-002 is about a mile from the cage site and only reports 23.15% use in late May. On 11/4/20 the original Barcus cage reported 98% use, there was no sign of cattle in the immediate cage area, so all use reported is attributed to horses. Only one clipping was taken at the Barcus 8x8 cage, 98.57% use was reported. Cattle and horses are responsible for this use because no other clipping was taken during the summer to differentiate use before and after the cattle were in the area. All the LAMS mentioned above also reported overuse on 11/4/20, 85.89% average use, but only LAMs 051119-002 and 003 represent the horse use after the cattle left the area. LAM 051119-002 increased from 23.15% use when the cattle left to 82.97% use, horses are responsible for the 59.82% increase of use.

Barcus Vegetation Sampling				
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/7/2018	65# per acre	35# per acre	30# per acre	46.15%
05/11/2019	60# per acre	20# per acre	40# per acre	66.67%
10/9/2019	180# per acre	80# per acre	100# per acre	55.56%
4/29/2020				No Use
11/4/2020	250# per acre	5# per acre	245# per acre	98%

2019- this cage site once again did not receive a clean break between cattle and horse use. Cattle were documented in the area throughout May, June, and July. However, no cattle use, or evidence of cattle were documented near the cage site, so the 5/11/19 use clipping of 66.67% use is attributed only to horses.

This cage site also received damage. One cage was knocked over after the first clipping, so we were only able to capture one more reading on 10/9/2019 for 55.56% use. Again, there were no signs of cattle at cage site. Even though the percent use from the clippings seems reversed, they both report overuse for the area and all use is attributed to horse. There are three LAMs in the area, contrary to the cage site all these LAMs receive horse and cattle use. LAM 051119-003 is almost directly across the draw of the cage site and by 9/13/2019 reported overuse; 70.52% use. Cattle seem to stay in the bottom of the draw.

2018-The site had cattle pass through it within the first two weeks of turn out and were not seen again until the later part of October. On 5/25/2018 LAMs 052518-001 and 002 were established. LAM 052518-002, located on the same side of CR88 as the Barcus cages, reported 12.03% use. There was no evidence of cattle near this LAM only horse, so this percent use is attributed to horses. LAM 052518-001, located opposite Barcus cages on the other side of CR88, reported 4.3% use. At some point in the middle of the season, two cages were knocked over. No evidence of grazing within the cage site was observed and the cages were re-installed. Because a clean break between cattle use and horse use was not achieved and the cage was knocked over mid-season, only a season ending value representing use by all species was collected which reported 46.15% use.

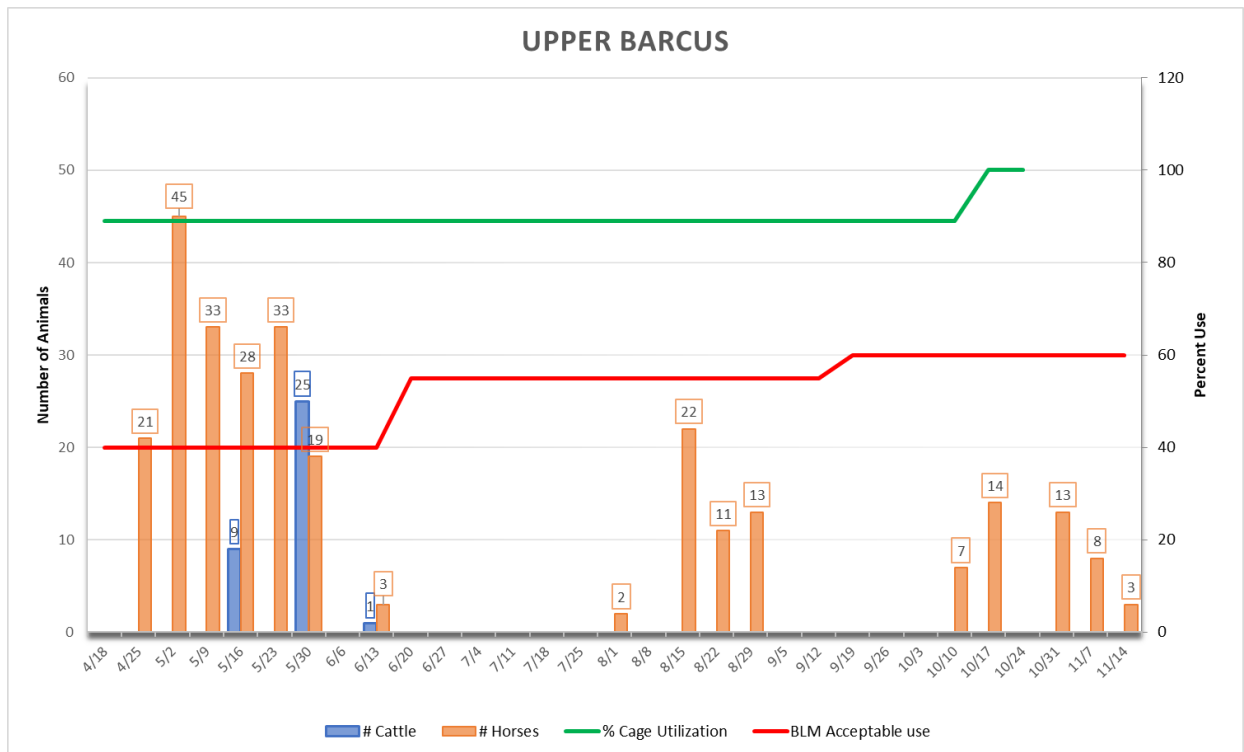
Upper Barcus

2021-Cattle were permitted to graze this allotment. Data from the camera captured cattle just a couple times during the spring, most animals seen by the camera was horses, see Chart 11 below. The 5/28/21 clipping reported overuse, 88.8%. Most LAMs began reporting overuse in the September readings.



	Upper Barcus Vegetation Sampling			
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/07/2018	165# per acre	135# per acre	30# per acre	18.18%
6/6/2019	150# per acre	130# per acre	20# per acre	13.33%
10/9/2019	90# per acre	40# per acre	50# per acre	55.56%
11/8/2019	70# per acre	30# per acre	40# per acre	57.14%
4/29/2020	140# per acre	60# per acre	80# per acre	57.14%
11/5/2020	100# per acre	10# per acre	90# per acre	90%
5/28/2021	90# per acre	10# per acre	80# per acre	88.8%
11/18/2021	120# per acre	0# per acre	120# per acre	100%

Chart 11. Upper Barcus camera was pulled for the season on 11/21/21. There was a possible camera fail between 9/9/21 and 10/10/21. All other spaces in the chart represent no Horse or Cattle activity, the camera was still functioning.



2020-Site was first visited on 4/29/2020, cage was clipped to capture winter use, and reported 57.14% use. This is the same percent captured in late 2019. The cage site appears to have no winter use. LAM 060619-005 is in the bottom of the draw and 20.67% use. On 6/30/2020 the site was visited again, there appeared to be no sign of cattle use, so the cage was not clipped. LAMs 060619-004 and 005 were read and reported 59.57% and 54.7% use, respectively. The site was visited one last time on 11/6/2020, there was no evidence of cattle being in this area all summer. Cage reported 90% use, LAMS 060619-004, 005 and LAM091319-001 reported 86.71%, 88% and 88% use. The horses used the bottom, hillside and top more evenly this year.

2019-this site was visited prior to cattle entering the area. The reading in May, 13.33%, represents total use by horses. The LAM data collected on this day also reports light use in the area. Two new LAMs were installed in September and still report only light use by horses. By October we still have no evidence of cattle being in the area throughout the season. The cage clipping reports 55.56% use. LAMs 060619-004 and 005 and 091319-001 report 29.4%, 34.37%, and 8.52% use, respectively. These LAMs are located down the hill from the cage site, we see the least amount of use in the bottom of the draw. This use pattern will be closely watched in future years.

2018-We visited this site multiple times throughout the season. The site received little to no use until our last visit on 11/07/2018, at which time we clipped and moved the cages. This clipping reported 18.18% use. Use is attributed to cattle and horse. The animals pass through this area but do not seem to spend much time in the parks. The grass was knee high in the middle of the season. Even by the end of the cattle grazing season, little use was documented. Distance to adequate water throughout the season is unknown. The north facing slope just ¼ mile from the cages did receive some grazing from both horses and cattle at some point. Much of the manure left was from the previous season.

Eighty-Eight

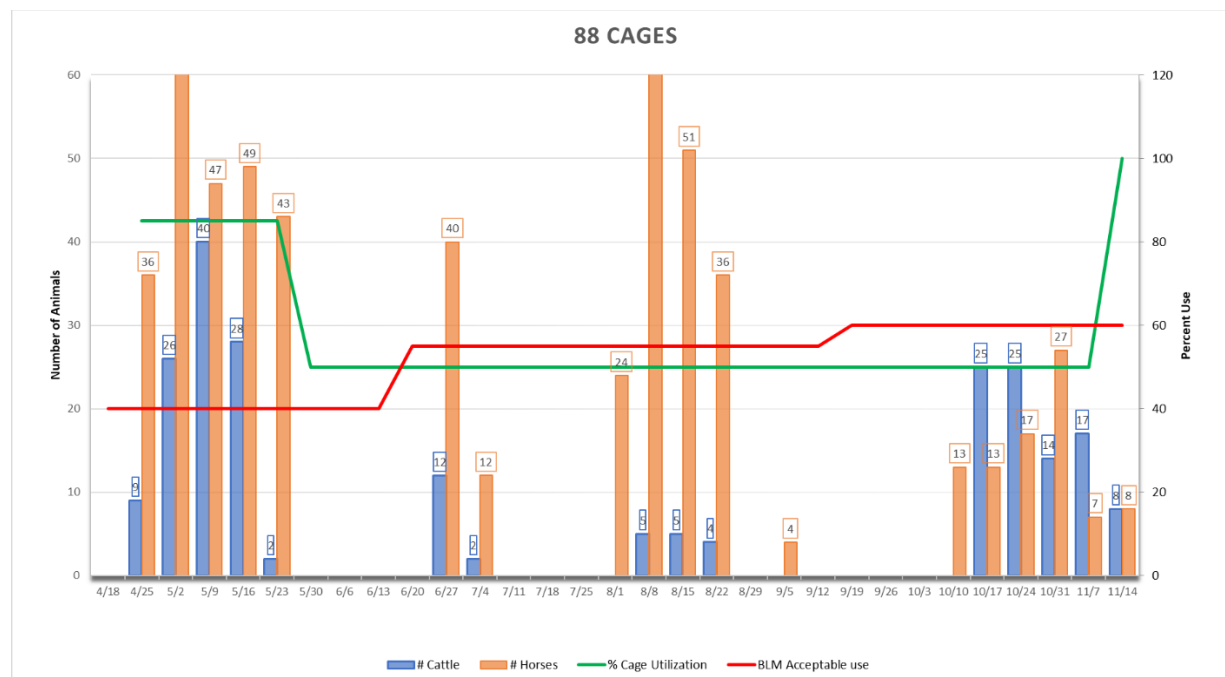
2021-Cattle and horses were documented by the camera starting in April. The first clipping on 5/28/21 reported overuse, 50%. The reported use in November was 100%. LAM sites 100919-001 and 004 reported overuse in July, but only sites 10019-002 and 003 reported overuse in November. The Barcus table shows these values in more detail, and explanations of



changing use patterns are found in the Analysis report. Chart 12. shows percent use reported by the cage clippings vs the animals in the area documented by the camera.

Eighty-Eight Vegetation Sampling				
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/7/2018	845# per acre	95# per acre	750# per acre	88.76%
5/11/2019	130# per acre	50# per acre	80# per acre	61.54%
10/19/2019	850# per acre	320# per acre	530# per acre	62.35%
11/6/2020	180# per acre	5# per acre	175# per acre	97.22%
4/24/2021 Winter use	220# per acre **suspect cage wasn't moved?	40# per acre	180# per acre	81%
5/28/2021	120# per acre	60# per acre	60# per acre	50%
11/18/2021	190# per acre	0# per acre	190# per acre	100%

Chart 12. 88 camera was pulled for the season on 11/19/21. There was a camera fail some time after 5/29/21 and was repaired/replaced on 6/27/21. The camera failed again after 7/9/21 and was repaired/replaced on 8/1/21. All other spaces in the chart represent no Horse or Cattle activity, the camera was still functioning.



2020-Site was first visited on 4/20/2020, the cage was not clipped because cattle were not due to enter the area until May. LAMs 100919-002k 003 and 004 all reported light use attributed to horses. The cattle entered the pasture on 5/1/2020 and left around 6/8/2020, but there was never evidence of cattle near the cage or LAM sites. On 6/30/2020 the LAMs reported an average 60% use. On 11/6/2020 we returned to capture final use for the season. The cage reported 97.22% and the LAMs 100919-001, 002, 003 and 004 reported 85.43%, 88.68%, 84.03% and 85.60% use, respectively. On 6/30/2020 LAM 051119-005 and 006 reported 37.66% and 44.67% use, respectively. These LAMs are closer to CR88, and cattle use was documented in the area. End of season use for these LAMs reported 65.2% and 53.25%, this is attributed to horses, because the cattle left the area in early June.

2019- The clipping taken in May, 61.54%, represents horse use up to that point. Cattle were not in the area. The October cage clipping was taken because this site also had a cage failure and we were afraid if we waited, we may lose all the data for the season. This clipping reported 61.54% use, all horse use. We also established four LAMs 100919-001, 002, 003, 004. LAM 100919-002 reports the most use, 58.46%, and is closest to the cage site. Use seemed to vary from light to moderate as we moved up hill and onto the plateau. All use was within acceptable use levels.

Inspections through November never showed cattle re-entering the area. Horse sign and heavy trailing are very evident in the area and become more evident in the fall.

2018-Named for the county road that bisects the area, this site was very productive in 2018. LAM 052518-005 was established and the spring reading reported 2.5% use. We were unable to identify which species was accountable for this use. LAM 060918-001 was established a little later in the spring and the first reading reported 13.5% use, based on evidence in the area, this use is attributed to cattle. This LAM is

closer to CR 88 and one of the water sources in the area and is most likely why we see more cattle activity. This LAM was read again on 11/2/2018 and reported 31.4% use, attributed to horses and cattle. Two cages were knocked over at some point during the grazing season. The one cage was destroyed and the second was just flat on the ground. The site had been grazed thoroughly when we found that it had been disturbed. The hair left behind suggests a horse or horses destroyed the cage. Because of the cage failures we were only able to collect one clipping on 11/7/2018 for 88.76% use which represents all use by cattle and horses.

Data was gathered from the third cage and the site was moved to a new location approximately mid slope, south of its original location. The heavy use in the bottom at this location did not carry up the hill side. Ocular observations show use just ¼ mile from the cage to be less than 25%. The new site will more accurately sample the average use in the area.

Pinto Mesa

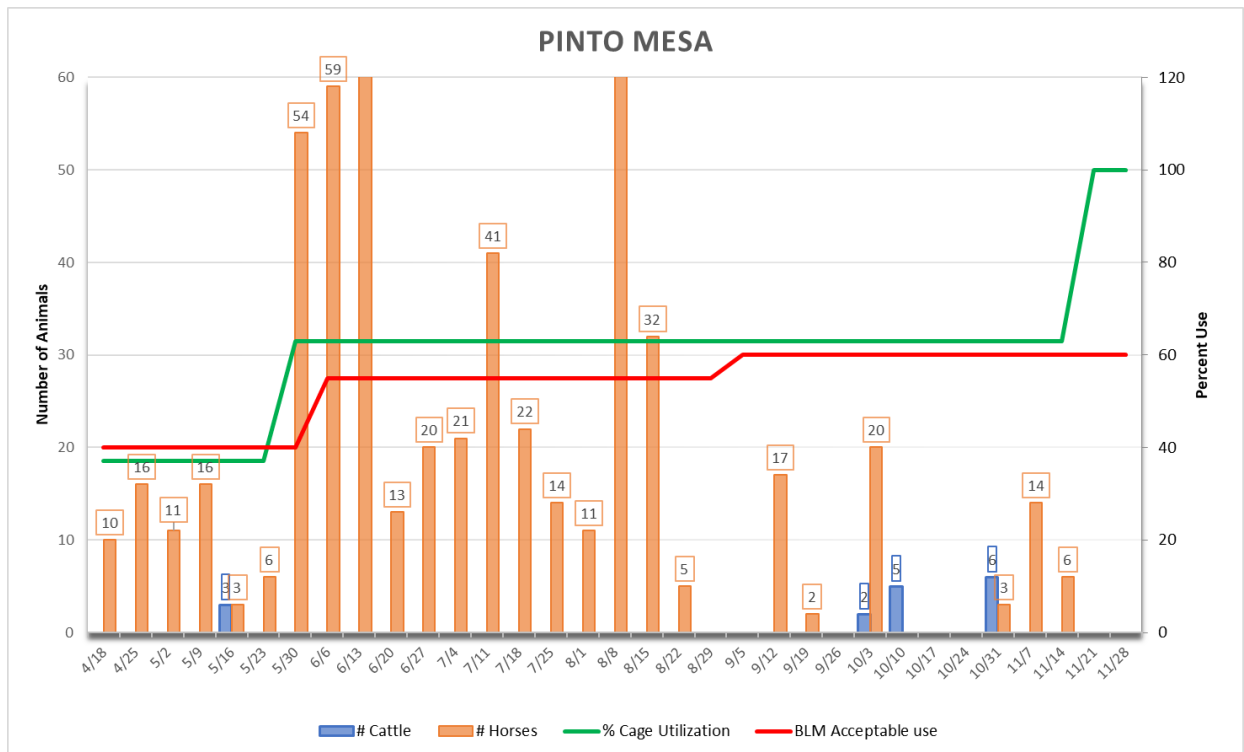
Pinto is in a rolling opening ¼ mile from trees in any direction. Cattle and horses frequent the area. Distance to water is unknown.



2021-The 5/28/21 clipping reported 63.6% use. Based on the camera data, reported in Chart 13., most of the camera visits were from horses, only 3 cows were captured by the camera data. This site also had varying use reported from the LAM data. High use was reported at LAMs LAM 032021-002, 041021-001 and 052518-003, but only site 052518-003 reported overuse in November.

	Pinto Mesa Vegetation Sampling			
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
06/02/2018	495# per acre	410# per acre	85# per acre	17.17%
11/07/2018	115# per acre	15# per acre	100# per acre	86.96%
06/06/2019	530# per acre	310# per acre	220# per acre	41.51%
10/09/2019	250# per acre	40# per acre	210# per acre	84%
5/13/2020	330# per acre	190# per acre	140# per acre	42.42%
11/4/2020	370# per acre	10# per acre	360# per acre	97.3%
4/24/2021 winter use	80# per acre	50# per acre	30# per acre	37%
5/28/2021	110# per acre	40# per acre	70# per acre	63.6%
11/18/2021	170# per acre	0# per acre	170# per acre	100%

Chart 13. Pinto Mesa camera was pulled for the season on 11/18/21. The camera failed sometime after 8/22/21 and was repaired/replaced on 9/14/21, and again after 10/10/21 and was replaced 10/31/21. All other spaces in the chart represent no Horse or Cattle activity, the camera was still functioning.



2020-On 5/13/2020 the first cage was clipped and reported 42.42%, this use is attributed to horses, there was no evidence of cattle in the area. Some cattle were documented in the area through the summer season, but no evidence of use near the cage site. On 11/4/2020 the cage reported 97.3% use.

2019-cattle were not documented in the area until June. The clipping on 6/6/2019 represents horse use. We made multiple passes through the area throughout the summer and rarely documented any cattle use. We re-clipped the site on 10/9/2019 and reported 84% use, but we only measured 250lbs available per acre. The difference in micro-site changes makes comparing data over a date range very difficult.

2018-This is another location where the data can support the total use by the horses and cattle. LAM 052518-003 was established and spring reading reported 2.5% use. No evidence of grazing animals in the area. On 11/2/2018 the LAM was read again and reported 24.6% use. This reading was taken after the grazing season and accounts for cattle and horse use. The cage was clipped 11/7/2018 and reports 86.96% use, also representing cattle and horse use. The cage site is in the bottom of this little hollow where there is more available forage, and the LAM site is up the hill near the road on a rockier area. The difference in sites may account for different use patterns.

Pinto Mesa #2

This cage site is several hundred yards off the small oil and gas road. It sits back in the Pinyon Juniper.

The reading on June 6th, 2019, shows inverted data, or more forage available outside of the cage than inside. This site is not a good representation of the area and was pulled in the fall of 2019.

2018-Horses were documented trailing back and forth in the area, however, little to no sign was observed around the cages.



While the data looks like 40 – 80% of the available forage was used, please note that there was only 25# available per acre. One bite from a horse or cow would be more than ½ of the total available forage in the sample plot.

	Pinto Mesa #2 Vegetation Sampling			
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
06/06/2018	25# per acre	15# per acre	10# per acre	40%
11/07/2018	25# per acre	5# per acre	20# per acre	80%
6/6/2019	10# per acre	70# per acre	-60# per acre	-600%

Coke Cages

The coke cages are in Coke Can gulch (local permittee name for the area).

2020-The cages and LAMs were not read this season because past data is always inverted, and efforts were better spent in different areas.

2019-the cage site has once again had more forage available outside of the cage than inside. Production at these sites is difficult to judge because of the amount of annual mustard scattered throughout the area. LAM data in July suggests very light use.



2018-The cage data in the table below, shows more forage available outside of the cage than inside. This is attributed to the local microclimate. The site is nearly 100% Cheatgrass and an annual mustard plant. The site showed little to no signs of grazing throughout the season. Elk tracks were documented early in the season along with a few photos of horses passing through the area. During the fall sweep of the allotment, we did see a few signs cattle had been in the area however they did not appear to stay in the area long enough to utilize any of the forage. Horse travel was heavy along the southern part of the drainage, but little to no horse use was observed. We re-visited the site in November but decided not to clip the cages because there was no observed difference between inside and outside of the cage.

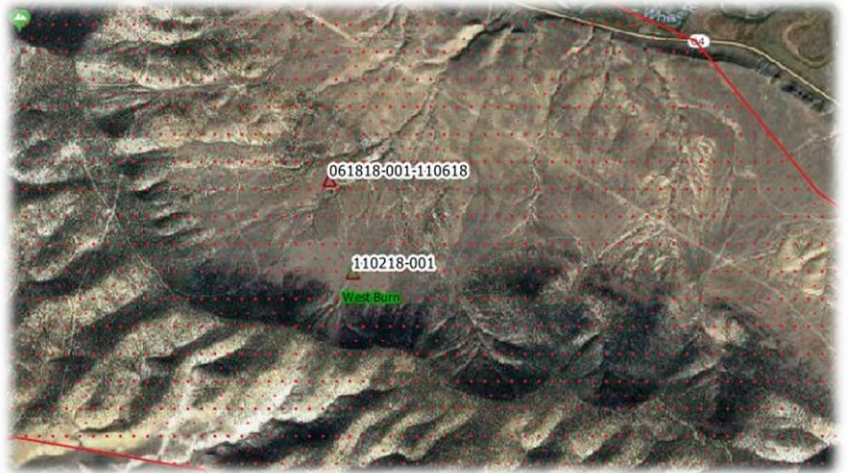
	Coke Vegetation Sampling			
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
06/06/2018	145# per acre	415# per acre	-270# per acre	-186.21%
10/9/2019	10# per acre	70# per acre	-60# per acre	-600%

Yellow Creek Pasture 4

Blair

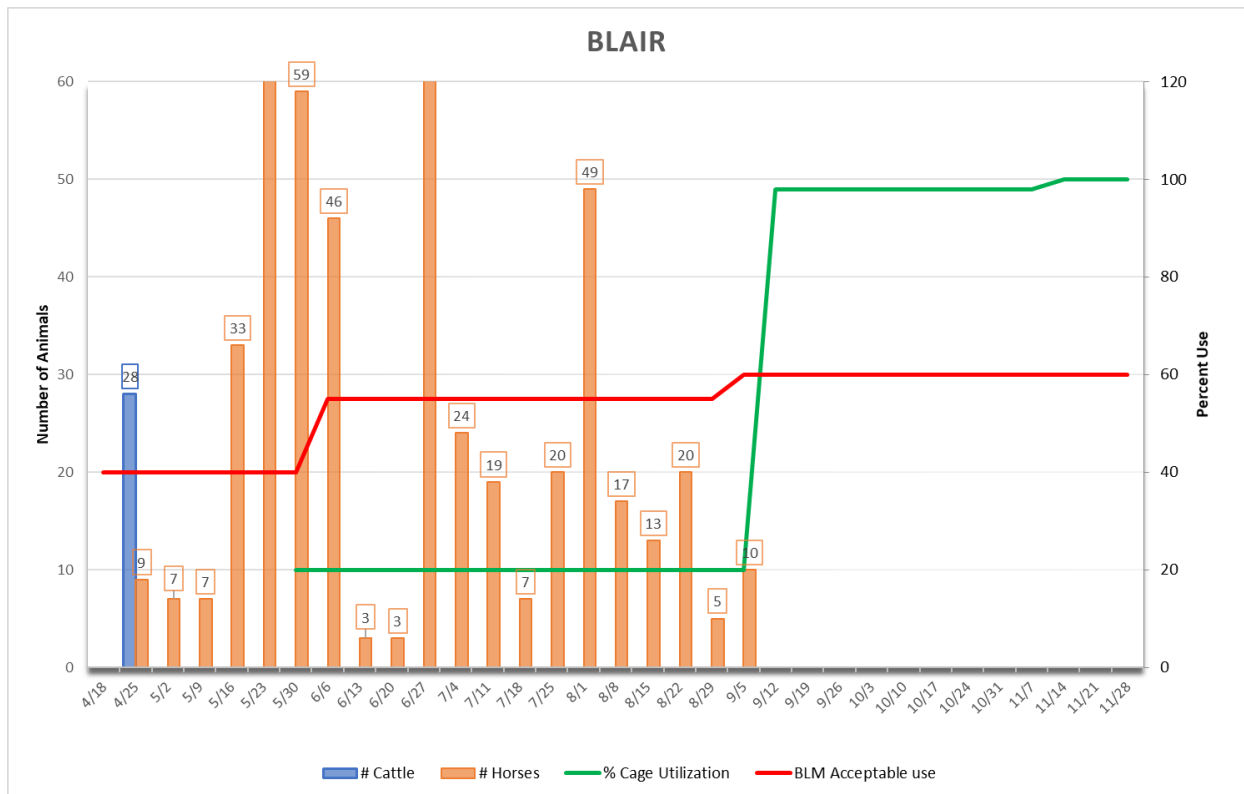
This cage site is located just south of highway 64. It is nearly the center of an old burn scar. The grass in the area is plentiful and healthy.

2021-The camera data captured 28 cattle moving through the site in late April, after that no others were seen, and no evidence of cattle was found on the ground, Chart 14. Cattle were not permitted on the Blair allotment. The cage clipping on 5/28/21 reported 20%, and by 9/11/21 use was reported at 98%. LAM 110218-001 also reported overuse in September, 77%. This site also showed varying use reported by the LAM data, there was a fall precipitation event in several areas, as mentioned above, and will be explained further in the Analysis report.



	West Burn/Blair Vegetation Sampling			
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/06/2018	285# per acre	185# per acre	100# per acre	35.09%
11/15/2019	420# per acre	60# per acre	360# per acre	85.71%
11/17/2020 cage1	680# per acre	50# per acre	630# per acre	92.65%
11/17/2020 cage2	500# per acre	130# per acre	370# per acre	74%
11/17/2020 cage3	300# per acre	80# per acre	220# per acre	73.33%
11/17/2020 cage average	4933# per acre	866.67# per acre	4066.67# per acre	82.43%
5/28/2021	50# per acre	40# per acre	10# per acre	20%
9/11/2021	280# per acre	5# per acre	275# per acre	98%
11/19/2021	230# per acre	0# per acre	230# per acre	100%
11/19/2021 Regrowth	80# per acre	0# per acre	80# per acre of regrowth between 9/11 – 11/19	100%

Chart 14. Blair camera was pulled for the season on 9/11/2021 to conserve budget. No cattle were allowed to enter the area. All use was attributed to horse and is confirmed with data gathered on the ground during the rest of the season.



2020- No cattle were scheduled to graze this year, so we did not visit the site until 11/17/2020 to capture horse use for the year. All three cages were clipped and averaged to capture the variance in available forage within each cage. The average use was 82.43%. The horses appear to like the cage site, LAMs 111519-005 and 006 reported 21% and 47.69% use. Horses were documented this day but were mostly up the hillsides in the Pinyon-Juniper. We also noted no grazing of the crested wheat grass.

2019- this area received only horse use. The cage is a good representation of the mid-slope burn area but does not represent the entire north side of Blair Mountain. The LAM data is distributed across the landscape and shows a lower total percent use. The cage clipping reported 85.71% use, overuse for the area. LAM 111519-006 shows mild overuse, 57.37%, but as stated above the rest of the LAM data shows light use for the area.

2018-LAM 060618-002 was established and reported 50% use all attributed to horses. LAM 061818-001, reported 11.1%, there was evidence of cattle and horse use in the area. This LAM was read again on 11/6/2018 and reported 13.21% use, there was really no increase in use over the summer, and we still attribute that use to cattle and horses. LAM 110218-001 was established and read, reporting 13.4% use. We were unable to identify the species using this area. There were no signs of cattle use at the cage site area as of 11/6/2018, only horse. The cage clipping reported 35.09% use.

Yellow Creek Crossing

The Yellow Creek crossing is on private ground, but we felt it important to document activity at this site because it appears to be heavily used by cattle and horses.

2021-The year end clipping on 11/18/21 reported 100% use. LAM 041021-003 reported 86% use. This site was used by horse and cattle.

	Yellow Creek single cage			
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/8/2019	4310# per acre	110# per acre	4200# per acre	97.45%
11/4/2020	5880# per acre	140# per acre	5740# per acre	97.62%
11/18/2021	5370# per acre	0# per acre	5370# per acre	100%

2020- The season clipping on 11/4/2020 captures cattle and horse use for the year and reported 97.62% use. Fall growth was captured in this clipping. Cattle and horse evidence seemed to be about a month old. Notes do report heavy use on both sides of the creek, and something was grazing the rabbit brush as well.

2019-We established a single cage near the yellow creek water crossing to document total available forage and total use for the season. The clipping reported 97.45% use. We also established the Water Crossing LAM which reported total use of 76%. The LAM reading might show slightly less use because it is difficult to capture fall growth with only one reading. Either way the data collected does demonstrate overuse in the area.

2018- We established LAM 060618-002, on 11/4/2018 this LAM reported 6.8% use by cattle and horses. This is different than our observations at the creek crossing, this LAM is just tucked into the sagebrush a little bit away from the creek bottom, use seems to be focused to the creek bottom and open areas.

East Burn

This cage is in the Pinyon-Juniper overstory along a 2-track road.

2020- Site was not visited this year, efforts were better spent focusing different areas.

2019-This location was not re-read. By the first of October it was no longer accessible because of the drifting snow on the north facing slope of Blair Mountain.

2018-The site was not visited until the first of November because the permittee said his cattle would not be in that area until fall and only if they get rains to fill the ponds. Water is very short on this part of the allotment.



The clipping data shows little use throughout the entire season, only 24%. There were a few elk tracks and sign that elk had been responsible for the grazing at the site and not cattle or horses. The grazed area was very localized to the area right around the cages. Inspection along the road while driving to and from the cages showed very little use, by any species. We also established LAM 110618-001 which reported 6.9% use, use is attributed to Horse and deer based on evidence found in the area.

East Burn Vegetation Sampling				
Date of Sample	Total #'s Available	Total #'s Remaining	Total Use by Date of Sample (#'s)	Total Use
11/7/2018	375# per acre	285# per acre	90# per acre	24%

This site is abandoned because we cannot access it early spring or late fall because of snow drifting.

Appendix

Greasewood Pasture 1

2021 Landscape Appearance Method transects (LAM)

LAM ID	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
061019-001	40.11507 -108.4481	5/31/21	5.86%	Horse				9/11/21	50.00%	Horse			
071519-001	40.155731 -108.447868	5/28/21	12.33%	Horse				9/11/21	38.50%	Horse	11/19/21	45.43%	Horse
071519-002	40.14977264 -108.4401245	5/28/21	4.44%	Horse	7/8/21	2.50%	Horse	9/11/21	17.20%	Horse	11/19/21	35.91%	Horse
071519-003	40.142851 -108.447531				7/8/21	7.01%	Horse				11/19/21	50.09%	Horse
071519-004	40.143015 -108.44789	5/28/21	6.70%	Horse	7/8/21	10.13%	Horse	9/11/21	26.00%	Horse	11/19/21	85.00%	Horse
071519-005	40.096651 -108.499577	5/31/21	12.68%	Horse	7/8/21	30.27%	Horse	9/11/21	84.50%	Horse	11/19/21	84.00%	Horse
071519-006	40.107473 -108.475754	5/31/21	12.94%	Horse	7/8/21	30.22%	Horse	9/11/21	70.50%	Horse			
071519-007	40.09220886 -108.4874725	5/31/21	2.92%	Horse	7/8/21	9.97%	Horse	9/11/21	29.60%	Horse	11/19/21	91.00%	Horse
071519-008	40.08497 -108.502737	5/31/21	4.60%	Horse				9/11/21	8.20%	Horse	11/19/21	90.80%	Horse
071519-009	40.09269714 -108.4639587	5/31/21	22.21%	Horse	7/8/21	41.40%	Horse	9/11/21	52.00%	Horse	11/19/21	96.00%	Horse
071519-010	40.09952927 -108.4484177	5/31/21	2.50%	Horse	7/8/21	54.55%	Horse	9/11/21	72.00%	Horse	11/19/21	95.00%	Horse
072718-001	40.1109 -108.489	5/31/21	2.50%	Horse				9/11/21	19.40%	Horse			
072919-001	40.07934 -108.48352	5/31/21	2.50%	Horse	7/8/21	6.93%	Horse	9/11/21	3.50%	Horse			
072919-002	40.076167 -108.491042	5/31/21	2.50%	Horse				9/11/21	5.00%	Horse	11/19/21	94.00%	Horse

2021 Landscape Appearance Method transects (LAM) cont.

LAM ID	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
072919-003	40.11162567 -108.4654465	5/31/21	27.32%	Horse	7/8/21	64.77%	Horse	9/11/21	73.00%	Horse	11/19/21	92.50%	Horse
072919-004	40.089557 -108.51224	5/31/21	30.09%	Horse	7/8/21	40.80%	Horse	9/11/21	91.00%	Horse			
102319-001	40.11917114 -108.452994	5/31/21	27.20%	Horse	7/8/21	49.30%	Horse	9/11/21	69.00%	Horse	11/19/21	66.00%	Horse
102319-002	40.11926651 -108.4636993	5/31/21	20.56%	Horse	7/8/21	17.53%	Horse	9/11/21	42.10%	Horse	11/19/21	59.26%	Horse
111519-003	40.157626 -108.374639				7/8/21	5.25%	Horse				11/19/21	24.73%	Horse
111720-001	40.169679 -108.384127										11/19/21	84.81%	Horse
111720-002	40.15473178 -108.375618										11/19/21	48.46%	Horse

2021 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
North Greasewood	4/24/21 (winter)	71%	Horse	5/28/21	50%	Horse	9/11/21	80%	Horse	11/19/21	94%	Horse	11/19/21 (regrowth)	100%	Horse
Middle Greasewood	4/23/21 (winter)	100%	Horse	5/28/21	30%	Horse	9/11/21	87.5%	Horse	11/19/21	93%	Horse			
South Greasewood	4/23/21	100%	Horse	5/28/21	69%	Horse	9/11/21	81%	Horse						

2020 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species
LAM 071519-002	40.14977264, -108.4401245	11/1/2020	10.55%	Horse
LAM 071519-007	40.09220886, -108.4874725	11/1/2020	42.5%	Horse
LAM 071519-009	40.09269714, -108.4639587	11/1/2020	85.17%	Horse
LAM 071519-010	40.09952927, -108.4484177	11/1/2020	93.71%	Horse
LAM 072919-003	40.11162567, -108.4654465	11/1/2020	28.43%	Horse
LAM 102319-001	40.11917114, -108.4552994	11/1/2020	31.65%	Horse
LAM 102319-002	40.11926651, -108.4636993	11/1/2020	52.35%	Horse
LAM 111519-001	40.16363525, -108.3799286	11/1/2020	7.13%	Horse
LAM 111720-002	40.15473, -108.37562	11/17/2020	22.74%	Horse

2020 Utilization Cages

Cage Name	Date Read	% Use	Species
North Greasewood	11/1/2020	0%	Horse
Middle Greasewood	11/1/2020	98.48%	Horse
South Greasewood	11/1/2020	95%	Horse

2019 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species
LAM 061019-001	40.11507 -108.4481	6/10/2019	3.52%	Horse			
LAM 071519-001	40.155731 -108.447868	7/15/2019	2.5%	undefinable			
LAM 071519-002	40.14977264, -108.4401245	7/15/2019	6.93%	undefinable			
LAM 071519-003	40.142851 -108.447531	7/15/2019	9.25%	undefinable			
LAM 071519-004	40.143015 -108.44789	7/15/2019	2.5%	undefinable			
LAM 071519-005	40.096651 -108.499577	7/15/2019	2.5%	undefinable			
LAM 071519-006	40.107473 -108.475754	7/15/2019	13%	undefinable	10/23/2019	12.98%	Undefinable
LAM 071519-007	40.09220886, -108.4874725	7/15/2019	12.84%	undefinable	10/23/2019	31.89%	Undefinable
LAM 071519-008	40.08497 -108.502737	7/15/2019	34.71%	Cattle			
LAM 071519-009	40.09269714, -108.4639587	7/15/2019	80.80%	Horse & Cattle			
LAM 071519-010	40.09952927, -108.4484177	7/15/2019	71.20%	Horse & Cattle			
LAM 072919-001	40.081 -108.483527	7/29/2019	15%	Horse & Cattle			
LAM 072919-002	40.076167 -108.491042	7/29/2019	19.81%	Cattle			
LAM 072919-003	40.11162567, -108.4654465	7/29/2019	4.9%	Horse	10/23/2019	16.79%	undefinable
LAM 072919-004	40.089557 -108.51224	7/29/2019	19.88%	Horse	10/23/2019	26.81%	undefinable
LAM 102319-001	40.11917114, -108.4552994	10/23/2019	37.85%	Horse			
LAM 102319-002	40.11926651, -108.4636993	10/23/2019	56.03%	Horse			
LAM 111519-001	40.16363525, -108.3799286	11/15/2019	24.85%	Horse			
LAM 111519-002	40.16182 -108.384665	11/15/2019	23.63%	Horse			
LAM 111519-003	40.157626 -108.374639	11/15/2019	50%	Horse			

2019 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species
North Greasewood	5/7/2019	73.77%	Horse			
Middle Greasewood	5/7/2019	68.75%	Horse	10/23/2019	76.67%	Horse
South Greasewood	10/23/2019	70%	Horse & Cattle			

2018 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species
LAM 072718-001	40.1109 -108.489	7/27/2018	2.5%	undefinable	11/10/2018	13.87%	undefinable
LAM 072718-003	40.0501 -108.548	7/27/2018	47.75%	Horse			

2018 Utilization Cages

Cage Name	Date Read	% Use	Species
Middle Greasewood	11/7/2018	94.74%	Horse
South Greasewood	11/6/2018	63.41%	Horse & Cattle

Square S (horse and boxelder)

2021 Landscape Appearance Method transects (LAM)

LAM ID	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
042720-002	39.87856293 -108.5233383	4/23/21	13.43	Horse	5/28/21	11.68	Horse	6/18/21	57.12	Horse & Cattle	7/9/21	51.65	Horse	9/13/21	24.6	Horse	11/21/21	51.95	Horse
051118-001	39.89785 -108.48				5/28/21	11.15	Horse	6/18/21	12.2	Horse & Cattle	7/9/21	14.31	Horse & Cattle	9/13/21	12	Horse	11/21/21	54.75	Horse
051118-002	39.87944 -108.525				5/28/21	6.71	Horse	6/18/21	34.52	Horse & Cattle	7/9/21	24.89	Horse						
051118-003	39.9009 -108.511				5/29/21	4.292	Horse	6/18/21	33.13	Horse & Cattle	7/9/21	71.35	Horse & Cattle	9/13/21	94.11	Horse & Cattle	11/21/21	91.23	Cattle
073019-002	39.9043541 -108.4588089	4/22/21	12.25	Horse	5/28/21	4.6	Horse & Cattle							9/26/21	43	Horse	11/21/21	76.03	Horse
073019-002	39.9043541 -108.4588089	4/22/2021 (winter)	44.91	Horse															
073019-003	39.88539886 -108.5166626	4/23/21	10.44	Horse	5/28/21	24.57	Horse	6/18/21	43.45	Horse & Cattle	7/9/21	50.86	Horse	9/13/21	37	Horse	11/21/21	69.35	Horse
081620-001	39.86817662 -108.5300833	4/23/21	11.08	Horse				6/18/21	38.53	Horse & Cattle	7/9/21	24.93	Horse						
081620-002	39.90453693 -108.477896	4/23/2021	9.44	Horse	5/28/21	0	NA	7/9/21	42.21	Horse & Cattle	8/16/21	34.62	Horse & Cattle	9/13/21	26	Horse	44521	89.48	Horse
081620-003	39.91592219 -108.4823917	5/28/2021	36.86	Horse & Cattle	6/18/2021	57.91	Horse & Cattle	7/9/21	74.5	Horse & Cattle				9/13/21	64	Horse & Cattle	11/21/21	95.92	Horse
110519-001	39.90616989 -108.4422989	4/23/2021	11	Horse	5/28/2021	13.82	Horse & Cattle	7/9/21	24.8	Horse & Cattle							11/21/21	38.23	Horse
110519-001	39.90616989 -108.4422989	4/23/2021 (winter)	24.82	Horse															

2021 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
Horse Park	5/28/2021	68%	Horse	7/8/2021	65%	Horse & Cattle	11/21/2021	100%	Horse
Boxelder	5/28/2021	40%	Horse				11/20/2021	100%	Horse & Cattle

2020 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species
LAM 073019-002	39.9043541 -108.4588089	11/5/2020	37.59%	Horse			
LAM 073019-003	39.88539886 -108.5166626	4/27/2020	10.14%	Horse	11/5/2020	22.97%	Horse
LAM 110519-001	39.906172 -108.4423	11/5/2020	2.5%	undefinable			
LAM 042720-002	39.87856293 -108.5233383	4/27/2020	10.83%	Horse	11/5/2020	43.87%	Horse
LAM 081620-001	39.86817662 -108.5300833	8/16/2020	8.41%	Horse			
LAM 081620-002	39.90453693 -108.477896	8/16/2020	61.18%	Horse			
LAM 081620-003	39.91592219	8/16/2020	92.5%	Horse & Cattle			

2020 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species
Horse Park	4/27/2020	80%	Horse	11/5/2020	92.86%	Horse
Boxelder	11/5/2020	61.33%	Horse & Cattle			

2019 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species
LAM 073019-002	39.9043541 -108.4588089	7/30/2019	13.71%	Horse	11/5/2019	28.8%	Horse
LAM 073019-003	39.88539886 -108.5166626	7/30/2019	4.92%	Horse	11/5/2019	9.65%	undefinable
LAM 110519-001	40.16363525 -108.3799286	11/5/2019	2.5%	undefinable			

2019 Utilization Cages

Cage Name	Date Read	% Use	Species
Horse Park	11/11/2019	75%	Horse
Boxelder	11/11/2019	60.98%	Horse & Cattle

2018 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species
LAM 051118-001	39.89785 -108.48	5/11/2018	2.5%	undefinable	11/4/2018	18.5%	Horse
LAM 051118-002	39.87944 -108.525	5/11/2018	2.9%	Undefinable	11/4/2018	10.9%	undefinable
LAM 051118-003	39.9009 -108.511	5/11/2018	9.16%	Horse	11/4/2018	51%	Horse & Cattle
LAM 110418-001	39.88565683 -108.5162978	11/4/2018	47.54%	Horse			

2018 Utilization Cages

Cage Name	Date Read	% Use	Species
Boxelder	11/14/2018	67.53%	Horse & Cattle

Yellow Creek Pasture 1 (south water canyon)

2021 Landscape Appearance Method transects (LAM)

LAM ID	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
042720-001	39.91265488 -108.4922943							6/18/21	46.23	Horse & Cattle				9/26/21	24	Horse & Cattle			
070218-001	39.90034 -108.524	4/23/21	7.12	Horse							7/9/21	2.825	Horse & Cattle	9/26/21	9.6	Horse & Cattle			
070218-002	39.9142 -108.498	4/23/21	5.57	Horse	5/29/21	3.26	Horse & Cattle				7/9/21	5.38	Horse & Cattle	9/26/21	37	Horse & Cattle	12/8/21	84.29	Horse
070218-003	39.92342 -108.519	4/23/21	8.81	Horse	5/29/21	7.41	Horse & Cattle				7/8/21	37.19	Horse & Cattle	9/26/21	46.8	Horse & Cattle			
070218-004	39.9147 -108.536	4/24/21	5.53	Horse	5/29/21	4.605	Horse & Cattle				7/8/21	10.07	Horse & Cattle	9/26/21	20	Horse & Cattle	12/8/21	88.08	Horse
070220-001	39.909351 -108.52235	4/23/21	9.173	Horse	5/29/21	24.91	Horse & Cattle				7/8/21	55	Horse & Cattle	9/26/21	94	Horse & Cattle			
073019-001	39.91286087 -108.491539				5/29/21	14.68	Horse & Cattle				7/9/21	53.88	Horse & Cattle				11/21/21	83.74	Horse
073019-004	39.9214325 -108.5078354	4/23/21	4.25	Horse	5/29/21	5.337	Horse & Cattle	6/18/21	43.45	Horse & Cattle	7/8/21	62.02	Horse & Cattle	9/26/21	96	Horse & Cattle	12/8/21	92.65	Horse
081518-001	39.93224 -108.526	4/30/2021	14.55	Horse	5/29/21	9.25	Horse & Cattle				7/8/21	12.66	Horse & Cattle	9/26/21	33.5	Horse & Cattle	11/21/2021	54.39	Horse
081518-004	39.93222 -108.495	4/30/2021	6.56	Horse	5/29/2021	5.013	Horse & Cattle				7/8/21	8.07	Horse & Cattle	9/26/21	90	Horse & Cattle			

2021 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species
South Water Canyon	5/28/2021	47.6%	Horse	12/28/2021	100%	Horse & Cattle

2020 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
LAM 073019-001	39.91286087 -108.491539	4/27/2020	4.44%	Horse	11/5/2020	75%	Horse & Cattle			
LAM 073019-004	39.9214325 -108.5078354	4/27/2020	5.22%	Horse	5/27/2020	8.82%	Horse	11/5/2020	77.45%	Horse & Cattle
LAM 042720-001	39.91265488 -108.4922943	4/27/2020	10.46%	Horse	11/5/2020	27.71%	Horse & Cattle			
LAM 070220-001	39.909351 -108.52235	7/2/2020	81.1%	Horse						

2020 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
South Water Canyon	4/27/2020	73.91%	Horse	5/27/2020	86.59%	Horse	7/2/2020	99.57%	Horse

2019 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species
LAM 073019-001	39.91286087 -108.491539	7/30/2019	28.36%	Horse & Cattle	11/11/2019	69.52%	Horse & Cattle
LAM 073019-004	39.9214325 -108.5078354	7/30/2019	28.24%	Horse & Cattle	11/11/2019	62.13%	Horse & Cattle

2019 Utilization Cages

Cage Name	Date Read	% Use	Species
South Water Canyon	11/8/2019	28.85%	Horse & Cattle

2018 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species
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LAM 070218-001	39.90034 -108.524	7/2/2018	7.66%	Undefinable	11/14/2018	50.4%	Cattle
LAM 070218-002	39.9142 -108.498	7/2/2018	13%	Horse			
LAM 070218-003	39.92342 -108.519	7/2/2018	30.86%	Cattle	11/14/2018	27.5%	Cattle
LAM 070218-004	39.9147 -108.536	7/2/2018	10.5%	Cattle & Horse	11/14/2018	13%	Horse
LAM 081518-001	39.93224 -108.526	8/15/2018	4.9%	undefinable	11/14/2018	62%	Horse
LAM 081518-003	39.92854 -108.573	8/15/2018	62.14%	Cattle			
LAM 081518-004	39.93222 -108.495	8/15/2018	4.92%	undefinable	11/14/2018	24.07%	undefinable

2018 Utilization Cages

Cage Name	Date Read	% Use	Species
South Water Canyon	11/14/2018	100%	Horse & Cattle

Yellow Creek Pasture 2 (24X and 84 Mesa)

2021 Landscape Appearance Method transects (LAM)

LAM ID	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
051118-004	39.9576 -108.409	4/30/21	10.84	Horse				6/18/21	39.53	Horse	7/9/21	26.5	Horse	9/13/21	10.5	Horse			
081518-002	39.95697 -108.495	4/30/21	12	Horse	5/28/21	8.29		6/18/21	21.44	Horse	7/8/21	5.92	Horse				11/21/21	55.93	Horse
081620-004	39.94602373 -108.4480138	3/20/2021 (winter)	72.7	Horse	5/28/21	10.9		6/18/21	31.89	Horse	7/8/21	40.88	Horse				11/21/21	67.9	Horse
081620-005	39.96155298 -108.4557478	3/20/2021 (winter)	82.75	Horse	5/28/21	6.74		6/18/21	24.64	Horse	7/8/21	25.33	Horse	8/30/21	13.7	Horse	11/21/21	52.76	Horse

2021 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
24X				5/28/2021	-250%	NA	7/8/2021	60%	Horse	11/21/2021	100%	Horse
84 Mesa	4/16/2021 (winter use)	87.5%	Horse	5/28/2021	50%	Horse	7/8/2021	75%	Horse			

2020 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	%Use	Species
LAM 081620-004	39.94602373 -108.4480138	8/16/2020	57.16%	Horse	3/20/2021	72.7%	Horse
LAM 081620-005	39.96155298 -108.4557478	8/16/2020	28.5%	Horse	3/20/2021	82.75%	Horse

2020 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species
24X	5/26/2020	0%		12/3/2020	90%	Horse
84 Mesa	12/3/2020	98.65%	Horse			

2019 Utilization Cages

Cage Name	Date Read	% Use	Species
24X	11/5/2019	20%	Horse
84 Mesa	11/5/2019	77.27%	Horse

2018 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	%Use	Species
LAM 051118-004	39.9576 -108.409	5/11/2018	2.9%	Horse			
LAM081518-002	39.95697 -108.495	8/15/2018	2.5%	undefinable	11/10/2018	7.6%	Horse

2018 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species
24X	6/2/2018	72.09%	Horse	11/14/2018	62.07%	Horse & Cattle
84 Mesa	6/2/2018	37.29%	Horse	11/14/2018	78.38%	Horse & Cattle

Yellow Creek Pasture 3 (Barcus)

2021 Landscape Appearance Method transects (LAM)

ID	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
041021-003	40.1139099 -108.3582081	4/10/2021 (winter)	92.59	Horse	4/10/21	11.54	Horse	5/28/21	24.053	Horse	7/9/21	50	Horse	9/13/21	89.4	Horse	11/18/21	86	Horse
042920-001	40.07847977 -108.4100037							5/28/21	4.18	Horse	7/9/21	19.312	Horse	9/14/21	69	Horse	11/21/21	69.17	Horse
051119-002	40.10976028 -108.3703308				4/10/21	5.535	Horse	5/28/21	34.24	Horse	7/9/21	24.859	Horse	9/13/21	95	Horse	11/18/21	95.48	Horse
051119-003	40.09801865 -108.3857574							5/28/21	5.67	Horse	7/9/21	24.742	Horse	9/13/21	100	Horse	11/18/21	100	Horse
051119-004	40.07172012 -108.392395										7/9/21	15.451	Horse	9/14/21	48	Horse	11/18/21	66	Horse
052518-002	40.0995 -108.3878				4/10/21	0	Horse	5/28/21	3.55	Horse	7/9/21	15.22	Horse	9/13/21	100	Horse	11/18/21	5.1	Horse
060619-003	40.09775162 -108.3865509							5/28/21	17.5	Horse	7/9/21	5.1	Horse	9/13/21	100	Horse			
WaterCrossing	40.11348343 -108.3581009	4/10/2021 (winter)	48.98	Horse	4/10/21	9.97	Horse				7/9/21	11.15	Horse	9/13/21	10.8	Horse	11/18/21	21	Horse
041021-005	40.04034 -108.4539				4/10/21	6.24	Horse	5/28/21	14.3	Horse	7/9/21	27.29	Horse	9/26/21	60	Horse			
051119-005	40.07350159 -108.4490356							5/28/21	9.711	Horse & Cattle	7/9/21	51.25	Horse & Cattle	9/13/21	61	Horse & Cattle	11/18/21	92.83	Horse & Cattle
051119-006	40.06797791 -108.4184723							5/28/21	3.5	Horse & Cattle	7/9/21	3.9	Horse & Cattle	9/13/21	100	Horse & Cattle	11/18/21	100	Horse & Cattle
051119-007	40.05566788 -108.4290314							5/28/21	11.729	Horse	7/9/21	6.54	Horse & Cattle	9/13/21	100	Horse			
052518-004	40.06234 -108.477				4/24/21	19.73	Horse	5/28/21	5.86	Horse & Cattle				9/13/21	65.6		11/18/21	94.3	Horse & Cattle

2021 Landscape Appearance Method transects (LAM) Cont.

ID	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
052518-005	40.06543 -108.469				4/24/21	26.29	Horse	5/28/21	18.32	Horse & Cattle	7/9/21	35.03	Horse & Cattle	9/13/21	36	Horse & Cattle			
060619-004	40.04367828 -108.454567				4/10/21	3.25	Horse	5/28/21	21.69	Horse	7/9/21	33.29	Horse & Cattle	9/26/21	40	Horse	11/21/21	30.55	Horse
060619-005	40.04504013 -108.4528885				4/10/21	3.2	Horse	5/28/21	49.44	Horse	7/9/21	56.88	Horse	9/26/21	62.4	Horse	11/21/21	51.67	Horse
060918-001	40.07246 -108.427							5/28/21	6.43	Horse & Cattle	7/9/21	8.535	Horse & Cattle	9/13/21	94.3	Horse & Cattle	11/18/21	87.86	Horse & Cattle
100919-001	40.0591 -108.4642										7/9/21	62.6	Horse & Cattle	9/13/21	49.4	Horse & Cattle	11/18/21	46.3	Horse & Cattle
100919-002	40.06602478 -108.4661865							5/28/21	9.76	Horse & Cattle	7/9/21	35.81	Horse & Cattle	9/13/21	62	Horse & Cattle	11/18/21	94.7	Horse & Cattle
100919-003	40.06375122 -108.4653015				4/23/21	20.23	Horse	5/28/21	14.72	Horse & Cattle	7/9/21	56.91	Horse & Cattle	9/13/21	68.5	Horse & Cattle	11/18/21	68.5	Horse & Cattle
100919-004	40.06023407 -108.4637909				4/24/21	11.67	Horse	5/28/21	13.21	Horse & Cattle	7/9/21	76.9	Horse & Cattle	9/13/21	61	Horse & Cattle	11/18/21	48.4	Horse & Cattle
032021-001	40.04237876 -108.35439481				3/20/21	87.38	Horse	5/28/21	3.76	Horse	7/9/21	38.868	Horse	9/14/21	11	Horse	11/18/21	67.8	Horse
032021-002	40.01512 -108.404581										7/9/21	61.125	Horse				11/18/21	48	Horse
041021-001	40.0152288 -108.404001	4/10/2021 (winter)	83.66	Horse	4/10/21	6.88	Horse	5/28/21	8.8	Horse	7/8/21	47.5	Horse	9/14/21	33.6	Horse			
052518-003	40.0165 -108.405				4/10/21	22.89	Horse				7/9/21	58.29	Horse				11/18/21	87.5	Horse
072919-006	40.042291 -108.373223				3/20/21	75.1	Horse	5/28/21	3.76	Horse				9/14/21	35	Horse	11/21/21	61.48	Horse
110418-001	40.0164 -108.4061	3/20/2021 (winter)	75.8	Horse															

2021 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
Barcus 8x8	4/24/21	37.5%	Horse	5/28/21	63.6%	Horse	11/18/21	100%	Horse
Upper Barcus				5/28/21	88.8%	Horse	11/18/21	100%	Horse
88	4/24/21	81%	Horse	5/28/21	50%	Horse & Cattle	11/18/21	100%	Horse & Cattle
Pinto Mesa #1	4/24/21	37%	Horse	5/28/21	63.6%	Horse	11/18/21	100%	Horse

2020 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
LAM 051119-002	40.10976028 -108.3703308	4/20/2020	7.54%	Horse	4/29/2020	17.18%	Horse	5/26/2020	23.15%	Horse & Cattle	11/4/2020	82.97%	Horse & Cattle
LAM 051119-003	40.09801865 -108.3857574	4/29/2020	19.44%	Horse	6/30/2020	75.25%	Horse & Cattle	11/4/2020	88%	Horse			
LAM 051119-004	40.07172012 -108.392395	4/29/2020	5.4%	Horse	11/4/2020	49.7%	Horse & Cattle						
LAM 051119-005	40.07350159 -108.4490356	4/20/2020	3.31%	Undefinable	6/30/2020	37.66%	Horse	11/6/2020	65.2%	Horse			
LAM 051119-006	40.06797791 -108.4184723	4/20/2020	0.00%		6/30/2020	44.67%	Horse & Cattle	11/6/2020	53.25%	Horse			
LAM 051119-007	40.05566788 -108.4290314	6/30/2020	45.5%	Horse & Cattle	11/4/2020	70.55%	Horse						
LAM 060619-003	40.09775162 -108.3865509	5/26/2020	14.95%	Horse & Cattle	11/4/2020	86.71%	Horse & Cattle						
LAM 060619-004	40.04367828 -108.45467	6/30/2020	59.57%	Horse	11/6/2020	86.71%	Horse						
LAM 060619-005	40.04504013 -108.4528885	4/29/2020	20.67%	Horse	6/30/2020	54.7%	Horse & Cattle	11/6/2020	88%	Horse			
LAM 091319-001	40.04558945 -108.453463	11/6/2020	88%	Horse									
LAM 100919-001	40.058968 -108.4642	11/6/2020	85.43%	Horse									
LAM 100919-002	40.06602478 -108.4661865	4/20/2020	8.67%	Horse	6/30/2020	66.04%	Horse	11/6/2020	88.68%	Horse			
LAM 100919-003	40.06375122 -108.4653015	4/20/2020	11.02%	Horse	6/30/2020	56.34%	Horse	11/6/2020	84.03%	Horse			
LAM 100919-004	40.06023407 -108.4637909	4/20/2020	6.39%	Horse	6/30/2020	57.63%	Horse	11/6/2020	85.60%	Horse			
LAM 042920-001	40.07847977 -108.4100037	4/29/2020	17.41%	Horse	6/30/2020	43.54%	Horse & Cattle	11/4/2020	47.26%	Horse			

2020 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species
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Barcus	11/4/2020	98%	Horse			
Barcus 8x8	11/4/2020	98.57%	Horse & Cattle			
Upper Barcus	4/29/2020	57.14%	Horse	11/5/2020	90%	Horse
88	11/6/2020	97.22%	Horse			
Pinto Mesa #1	5/13/2020	42.42%	Horse	11/4/2020	97.3%	Horse

2019 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
LAM 051119-002	40.10976028 -108.3703308	5/11/2019	18.8%	Horse & Cattle	6/6/2019	18.52%	Horse & Cattle	9/13/2019	41.88%	Cattle, little horse	10/9/2019	48.78%	Horse & Cattle
LAM 051119-003	40.09801865 -108.3857574	5/11/2019	14.52%	Cattle	9/13/2019	70.52%	Horse & Cattle	10/9/2019	84.4%	Horse & Cattle			
LAM 051119-004	40.07172012 -108.392395	5/11/2019	9.46%	Horse	11/8/2019	9.02%	Horse						
LAM 051119-005	40.07350159 -108.4490356	5/11/2019	19.92%	Horse	9/13/2019	16.83%	Horse	10/9/2019	17.34%	Horse			
LAM 051119-006	40.06797791 -108.4184723	5/11/2019	9.95%	Horse	10/9/2019	29.39%	Horse						
LAM 051119-007	40.05566788 -108.4290314	5/11/2019	8.27%	Undefined	10/9/2019	5.85%	undefined						
LAM 060619-003	40.09775162 -108.3865509	6/6/2019	9.44%	Horse & Cattle	10/9/2019	16.48%	Horse						
LAM 060619-004	40.04367828 -108.45467	6/6/2019	4.6%	Horse	10/9/2019	29.4%	Horse	11/8/2019	31.4%	Horse			
LAM 060619-005	40.04504013 -108.4528885	6/6/2019	20.88%	Undefined	10/9/2019	34.37%	Horse	11/8/2019	61.61%	Horse			
LAM 072919-005	40.0386 -108.3787	7/29/2019	3.41%	undefined									
LAM 072919-006	40.042291 -108.3787	7/29/2019	26.38%	Horse									
LAM 072919-007	40.042293 -108.373036	7/29/2019	2.5%	Horse									
LAM 072919-008	40.042781 -108.371335	7/29/2019	3.28%	Horse									
LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
LAM 091319-001	40.04558945 -108.453463	9/13/2019	2.5%	undefined	10/9/2019	8.52%	undefined	11/8/2019	2.86%	undefined			

LAM 091319-002	40.042237 -108.478724	9/13/2019	8.83%	Horse									
LAM 100919-001	40.0591 - 108.4642	10/9/2019	22.41%	Horse									
LAM 100919-002	40.06602478 -108.4661865	10/9/2019	58.46%	Horse									
LAM 100919-003	40.06375122 -108.4653015	10/9/2019	25.44%	Horse									
LAM 100919-004	40.06023407 -108.4637909	10/9/2019	40.18%	Horse									

2019 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
Barcus	5/11/2019	66.67%	Horse	10/9/2019	55.56%	Horse			
Upper Barcus	6/6/2019	13.33%	Horse	10/9/2019	55.56%	Horse	11/8/2019	57.14%	Horse
88	5/11/2019	61.54%	Horse	10/19/2019	62.35%	Horse			
Pinto Mesa #1	6/6/2019	41.51%	Horse	10/9/2019	84%	Horse & Cattle			

2018 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species
LAM 052518-001	40.09901 -108.385	5/25/2018	4.3%	Horse & Cattle	11/2/2018	15.9%	Horse & Cattle
LAM 052518-002	40.09942 -108.386	5/25/2018	12.03%	Horse	11/2/2018	60.03%	Horse
LAM 052518-003	40.01658 -108.405	5/25/2018	2.5%	Undefinable	11/2/2018	24.6%	Horse & Cattle
LAM 052518-004	40.60234 -108.477	5/25/2018	2.5%	undefinable			
LAM 052518-005	40.06543 -108.469	5/25/2018	2.5%	undefinable			
LAM 060918-001	40.07246 -108.427	6/9/2018	13.5%	Cattle	11/2/2018	31.4%	Cattle and Horse

2018 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species
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Barcus	11/7/2018	46.15%	Horse & Cattle			
Upper Barcus	11/7/2018	18.18%	Horse & Cattle			
88	11/7/2018	88.76%	Horse & Cattle			
Pinto Mesa #1	6/2/2018	16.87%	Horse	11/7/2018	86.96%	Horse & Cattle

Yellow Creek Pasture 4 (Blair)

2021 Landscape Appearance Method transects (LAM)

LAM ID	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
060618-001	40.06897 -108.314	4/10/21	5.63%	Horse	5/28/21	3.45%	Horse	7/9/21	2.50%	Horse				11/18/21	2.50%	Horse
060618-001	40.06897 -108.314										9/13/21	2.50%	Horse			
060618-002	40.07819 -108.32715										9/13/21	100%	Horse			
060619-001	40.07799911 -108.327179	4/10/21	4.52%	Horse	5/28/21	4.60%	Horse	7/9/21	2.50%	Horse				11/18/21	2.50%	Horse
061818-001	40.13795 -108.351							7/8/21	4%	Horse	9/11/21	18%	Horse			
110218-001	40.13253 -108.349							7/8/21	81.28%	Horse	9/11/21	77%	Horse	11/19/21	71.04%	Horse
111519-001	40.16363525 -108.379929							7/8/21	3.58%	Horse	9/26/21	9.20%	Horse			
111519-004	40.136834 -108.350306				5/28/21	3.86%	Horse				9/11/21	31%	Horse	11/19/21	38.79%	Horse
111519-005	40.12193302 -108.314515													11/19/21	70.67%	Horse
111519-006	40.10023502 -108.281113													11/19/21	52.54%	Horse
DOW Enclosure											9/13/21	87.50%	Horse			

2021 Utilization Cages

Cage Name	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
Blair Cages	5/28/21	20	Horse	9/11/21	98	Horse	11/19/21	100	Horse	11/19/21 Regrowth	100	Horse
										80#/acre of regrowth between 9/11-11/19		

2020 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
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LAM 051119-001	40.06907272 -108.3137131	4/29/2020	6.17%	undefi nable	5/26/2020	3.03%	Horse & Cattle	11/4/2020	12.7%	Horse
LAM 060619-001	40.07799911 -108.327179	4/29/2020	0.00%	NA	5/26/2020	9.33%	Horse & Cattle	11/4/2020	2.5%	undefi nable
LAM 111519-005	40.12193298 -108.3145142	11/17/2020	21%	Horse						
LAM 111519-006	40.10023499 -108.2811127	11/17/2020	47.69%	Horse						
LAM 111720-001	40.169077 -108.33318	11/17/2020	13.87%	Horse						
Water Crossing	40.11348343 -108.3581009	11/4/2020	72.65%	Horse & Cattle	This point is on the line between units 3 & 4 and is also near a watering location					

2020 Utilization Cages

Cage Name	Date Read	% Use	Species
Blair Cage 1	11/17/2020	92.65%	Horse
Blair Cage 2	11/17/2020	74%	Horse
Blair Cage 3	11/17/2020	73.33%	Horse
Blair Cage Average	11/17/2020	82.43%	Horse
Water Crossing Cage	11/4/2020	97.62%	Horse & Cattle

2019 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species	Date Read	% Use	Species
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LAM 051119-001	40.06907272 -108.3137131	9/13/2019	3.13%	Undefined	10/9/2019	3.67%	undefined	11/8/2019	7.62%	undefined
LAM 060619-001	40.07799911 -108.327179	6/6/2019	2.86%	Undefined	9/13/2019	2.5%	Undefined	10/9/2019	14.05%	Undefined
LAM 060619-002	40.07819 -108.327153	6/6/2019	3.59%	Undefined	9/13/2019	2.5%	Undefined	10/9/2019	16.23%	Undefined
LAM 111519-004	40.136834 -108.350306	11/15/2019	12.51%	Horse						
LAM 111519-005	40.12193298 -108.3145142	11/15/2019	9.52%	Horse						
LAM 111519-006	40.10023499 -108.2811127	11/15/2019	57.37%	Horse						
Water Crossing	40.11348343 -108.3581009	10/9/2019	76%	Horse & Cattle	This point is on the line between units 3 & 4 and is also near a watering location					

2019 Utilization Cages

Cage Name	Date Read	% Use	Species
Blair	11/15/2019	85.71%	Horse
Water Crossing Cage	11/8/2019	97.45%	Horse & Cattle

2018 Landscape Appearance Method transects (LAM)

LAM	Location	Date Read	% Use	Species	Date Read	% Use	Species
LAM 060618-001	40.06897 -108.314	6/6/2018	7.5%	Horse & Cattle			
LAM 060618-002	40.09874 -108.274	6/6/2018	50%	Horse			
LAM 061818-001	40.13795 -108.351	6/18/2018	11.1%	Horse & Cattle	11/6/2018	13.21%	Horse & Cattle
LAM 060618-002	40.11353 -108.358	6/18/2018	7.46%	Horse	11/4/2018	6.8%	Horse
LAM 110218-001	40.13253 -108.349	11/2/2018	13.4%	Undefined			
LAM 110618-001	40.1149 -108.323	11/6/2018	6.9%	Horse			

2018 Utilization Cages

Cage Name	Date Read	% Use	Species
Blair	11/6/2018	35.09%	Horse

Charts

Greasewood Pasture 1

Chart 1.

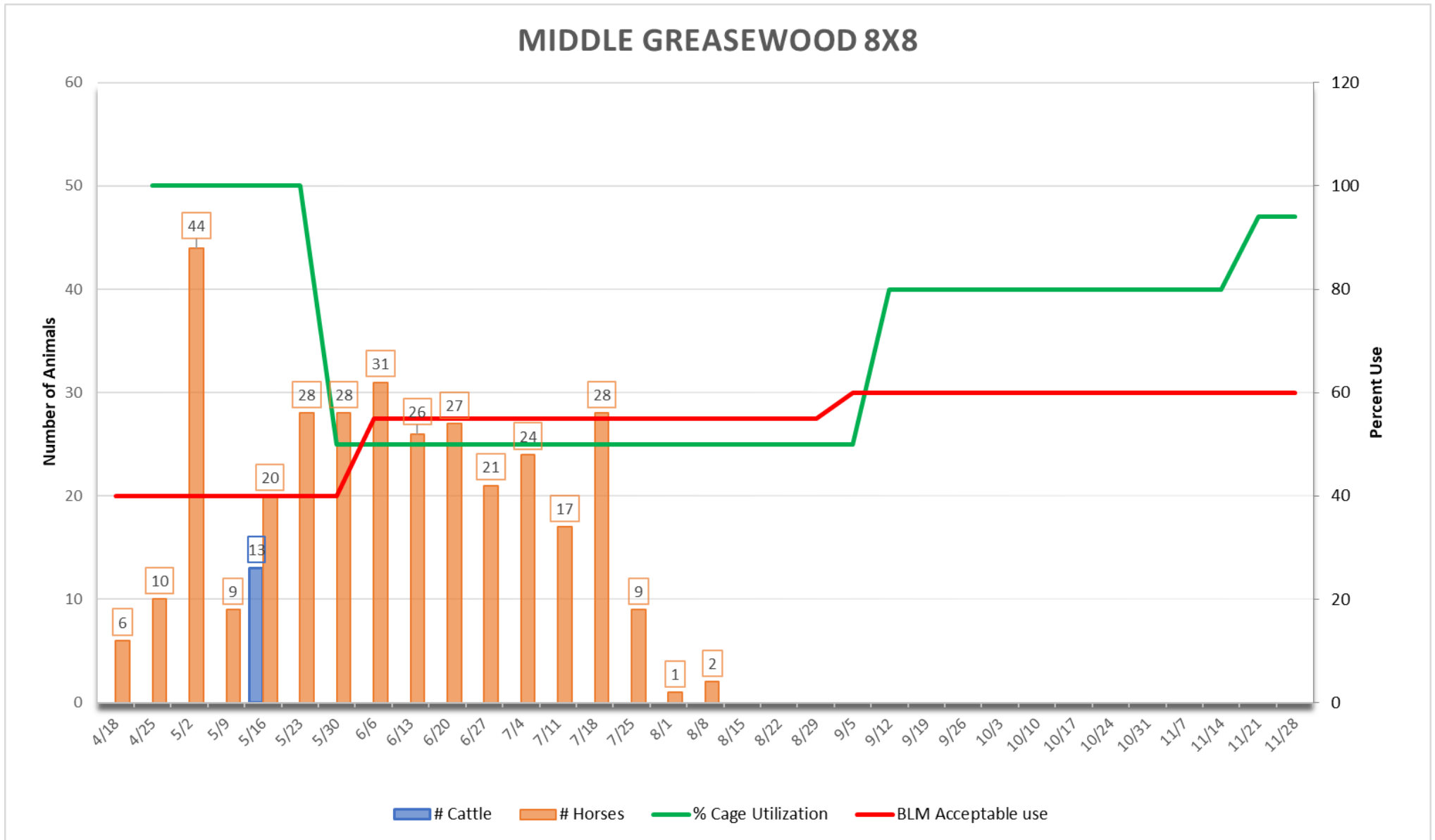


Chart 2.

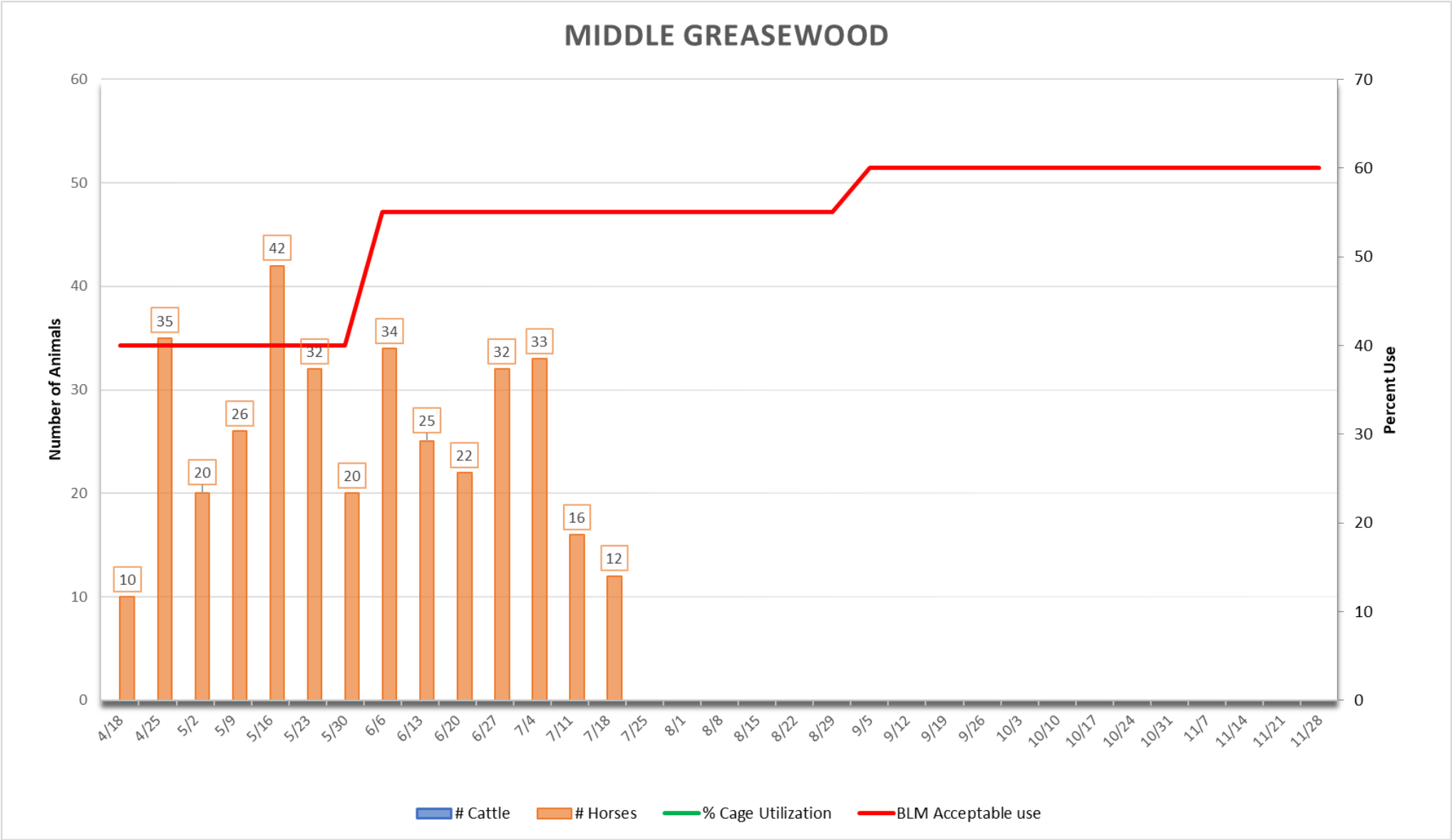


Chart 3.

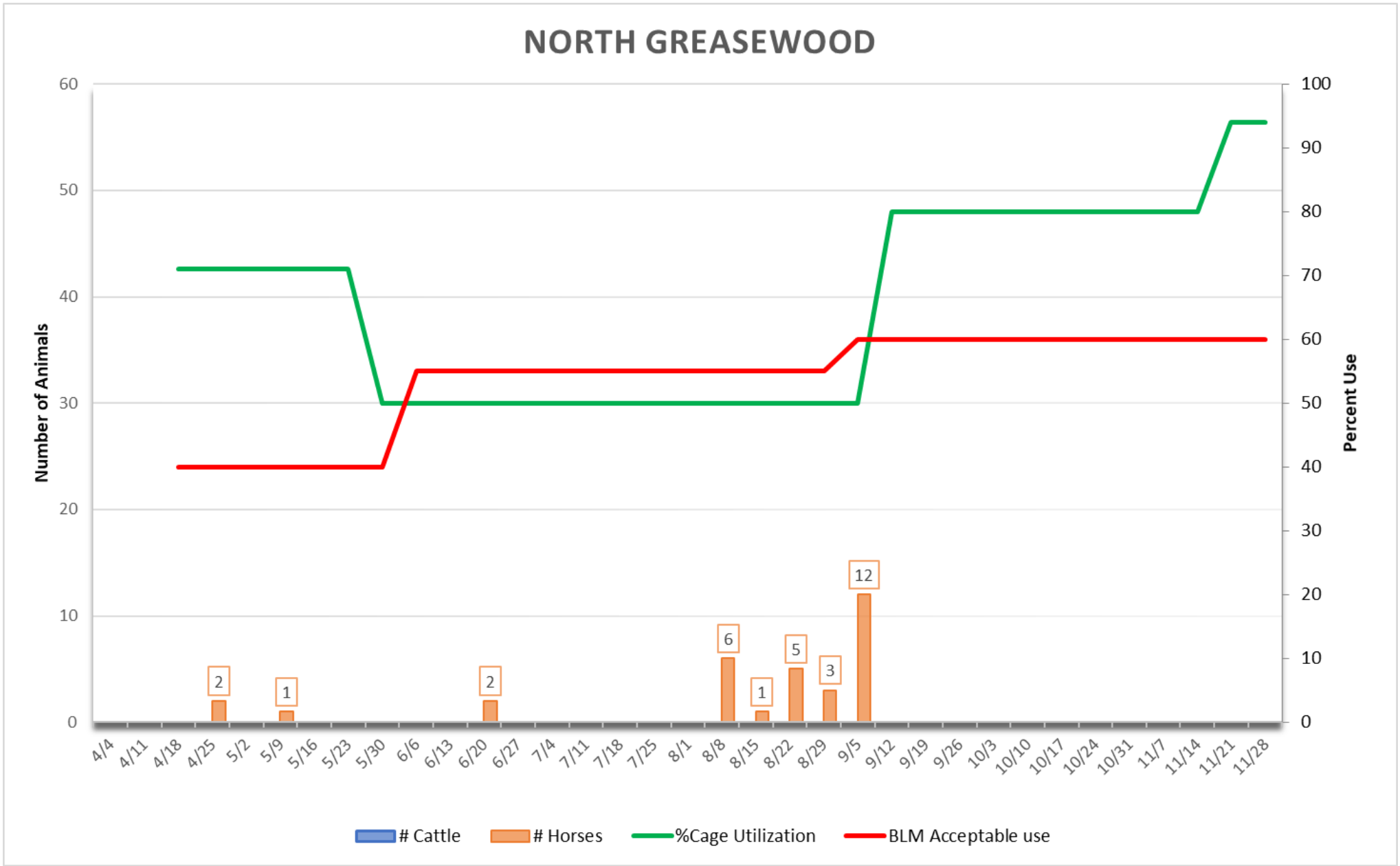


Chart 4.

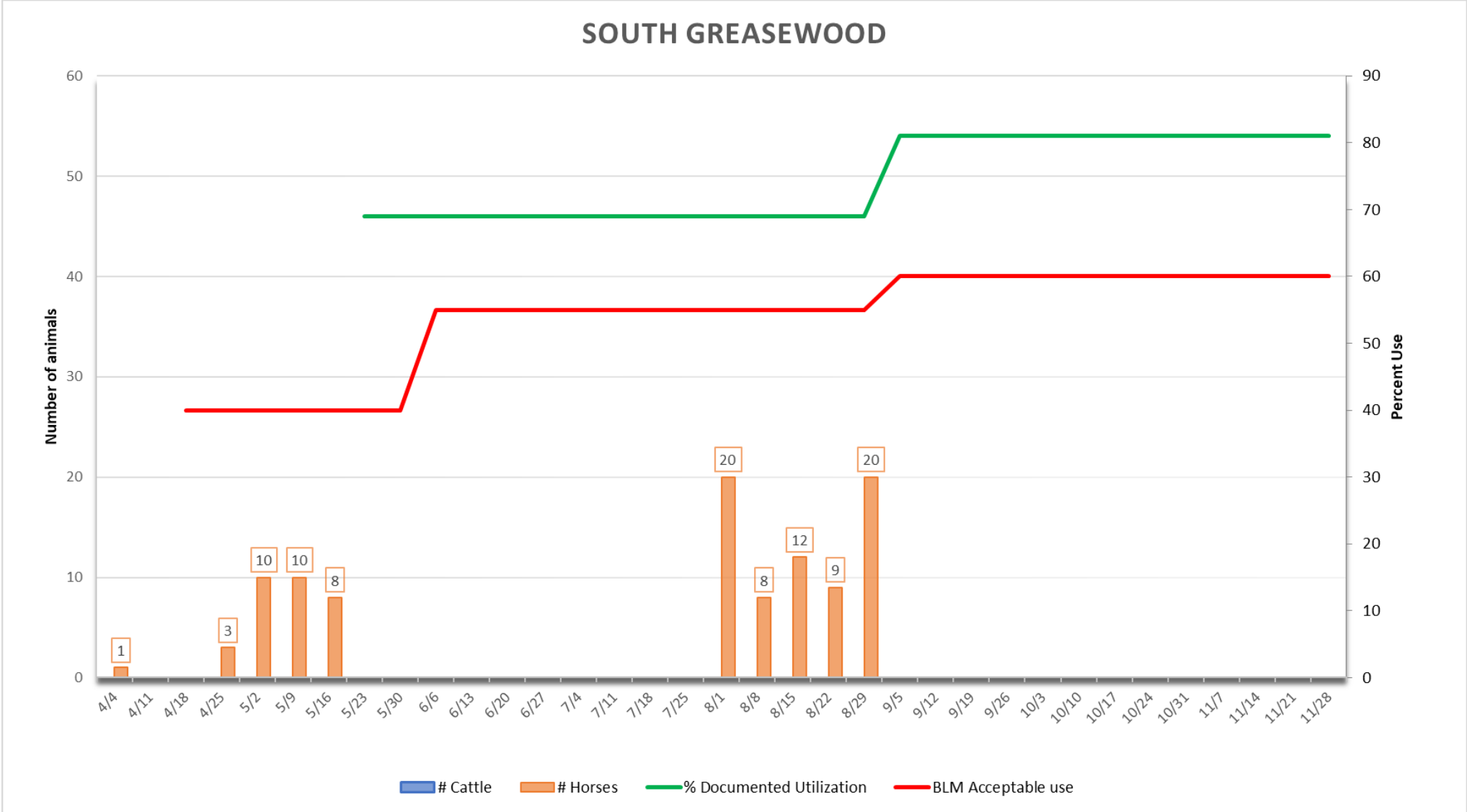


Chart 5.

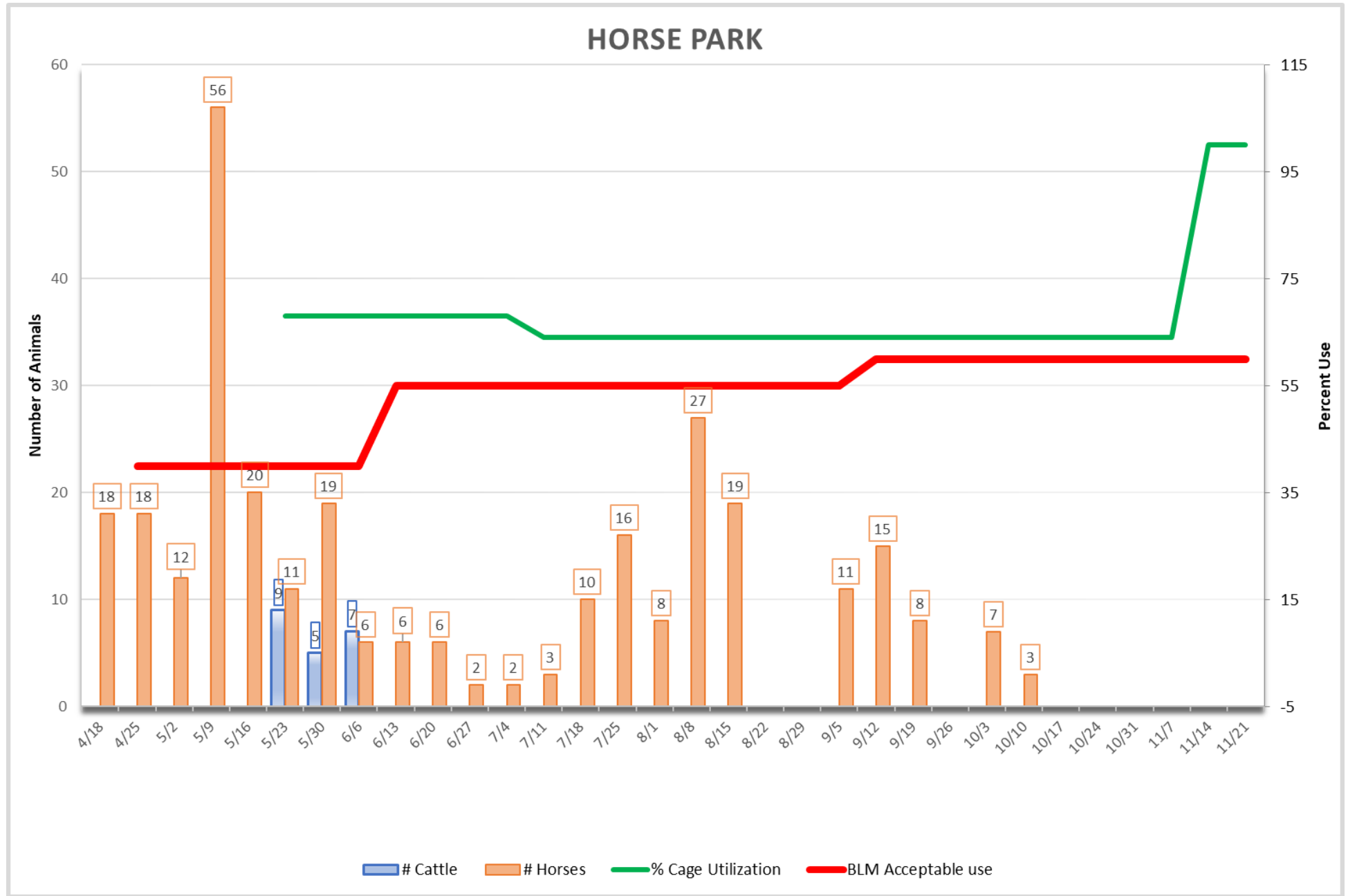


Chart 6.

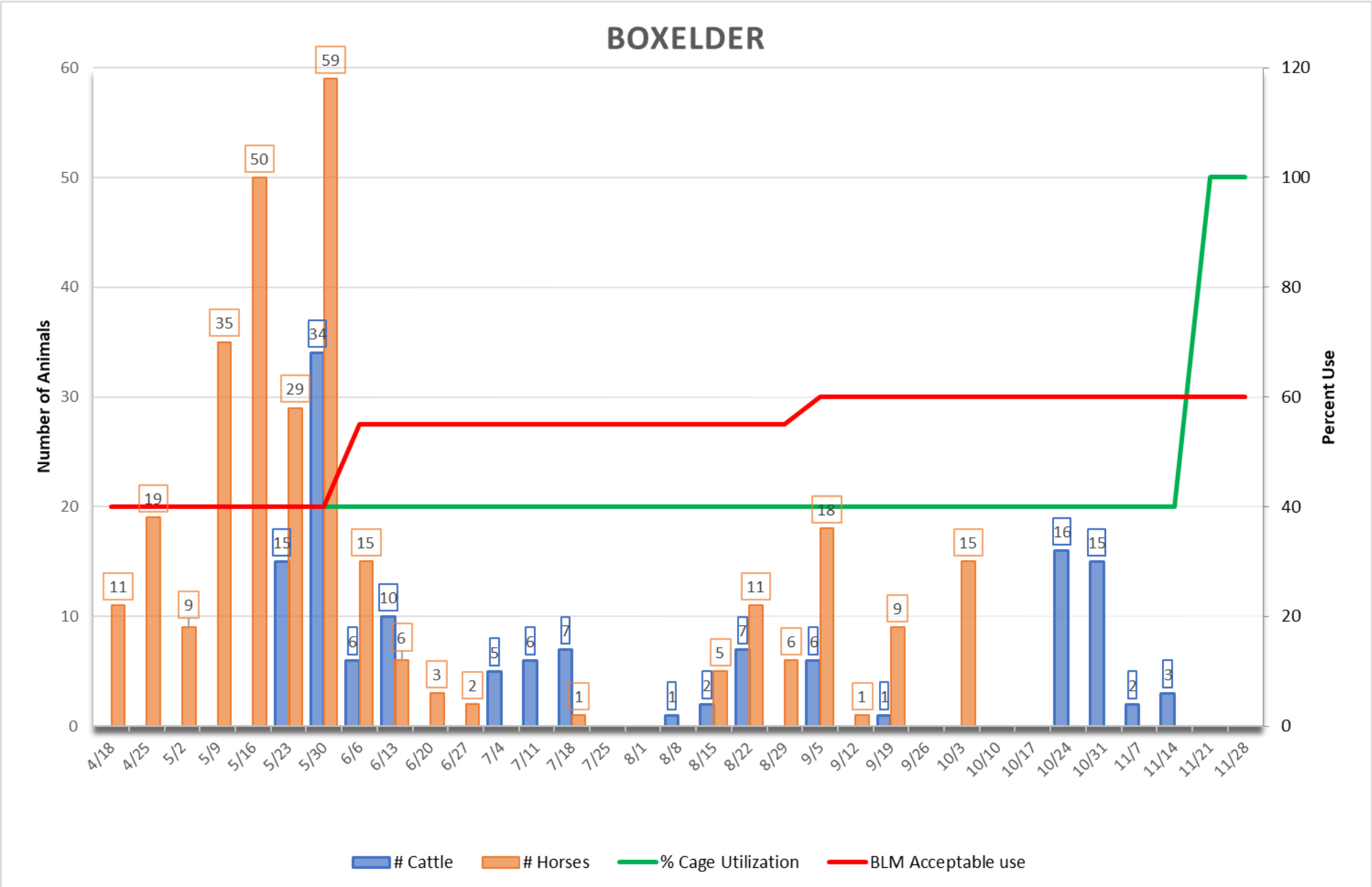


Chart 7.

SOUTH WATER CANYON

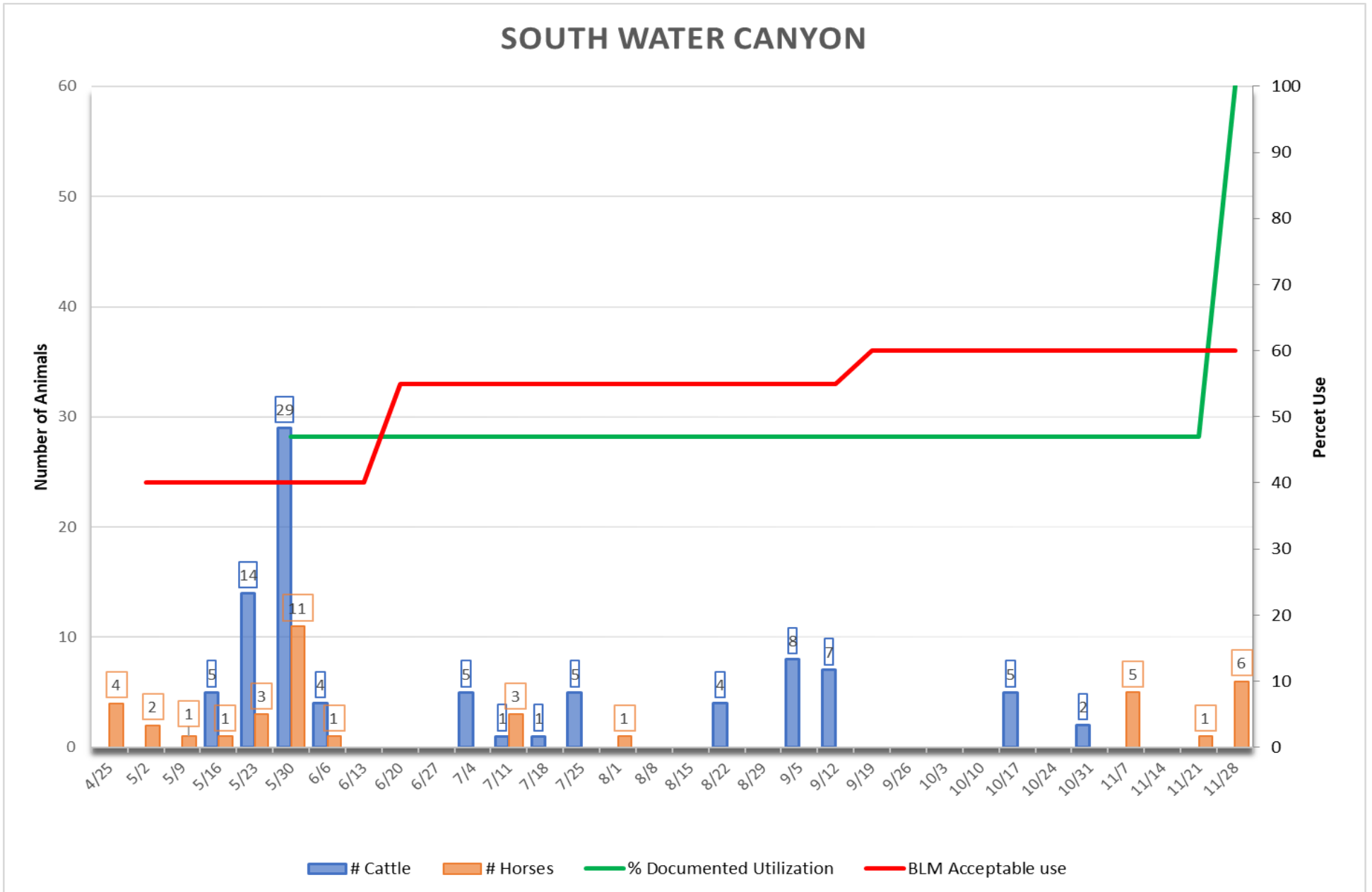


Chart 8.

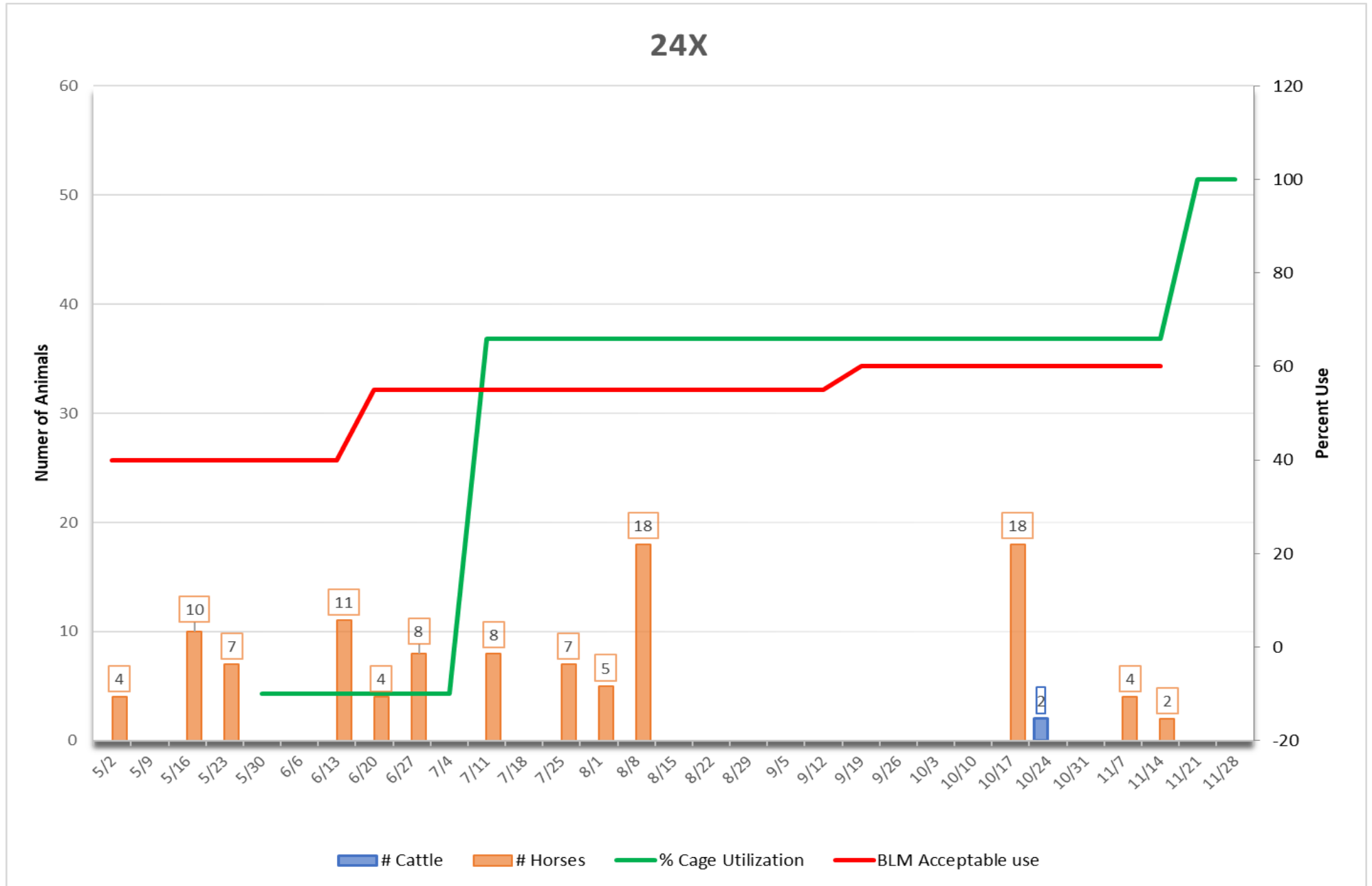


Chart 9.

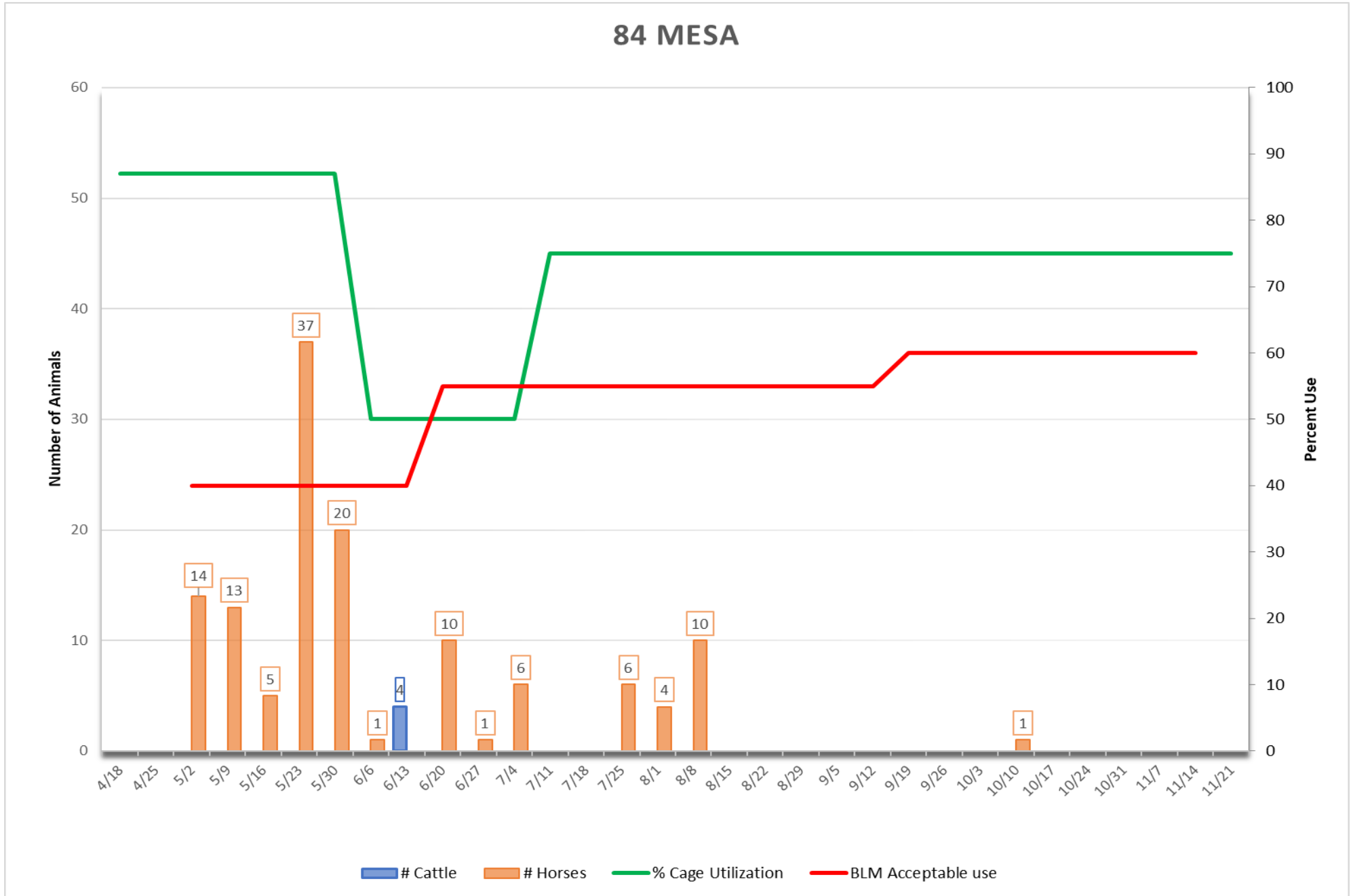


Chart 10.

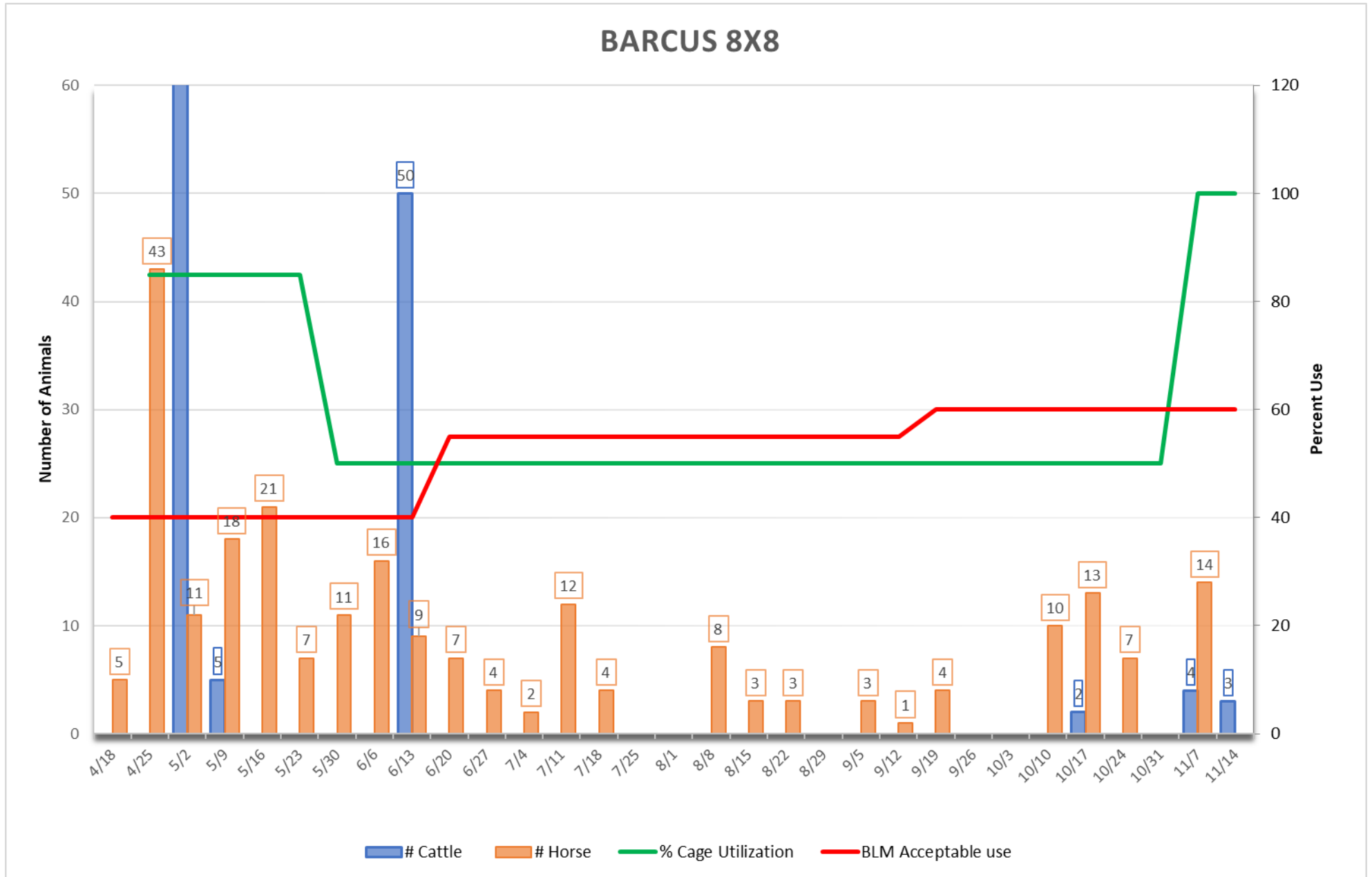


Chart 11.

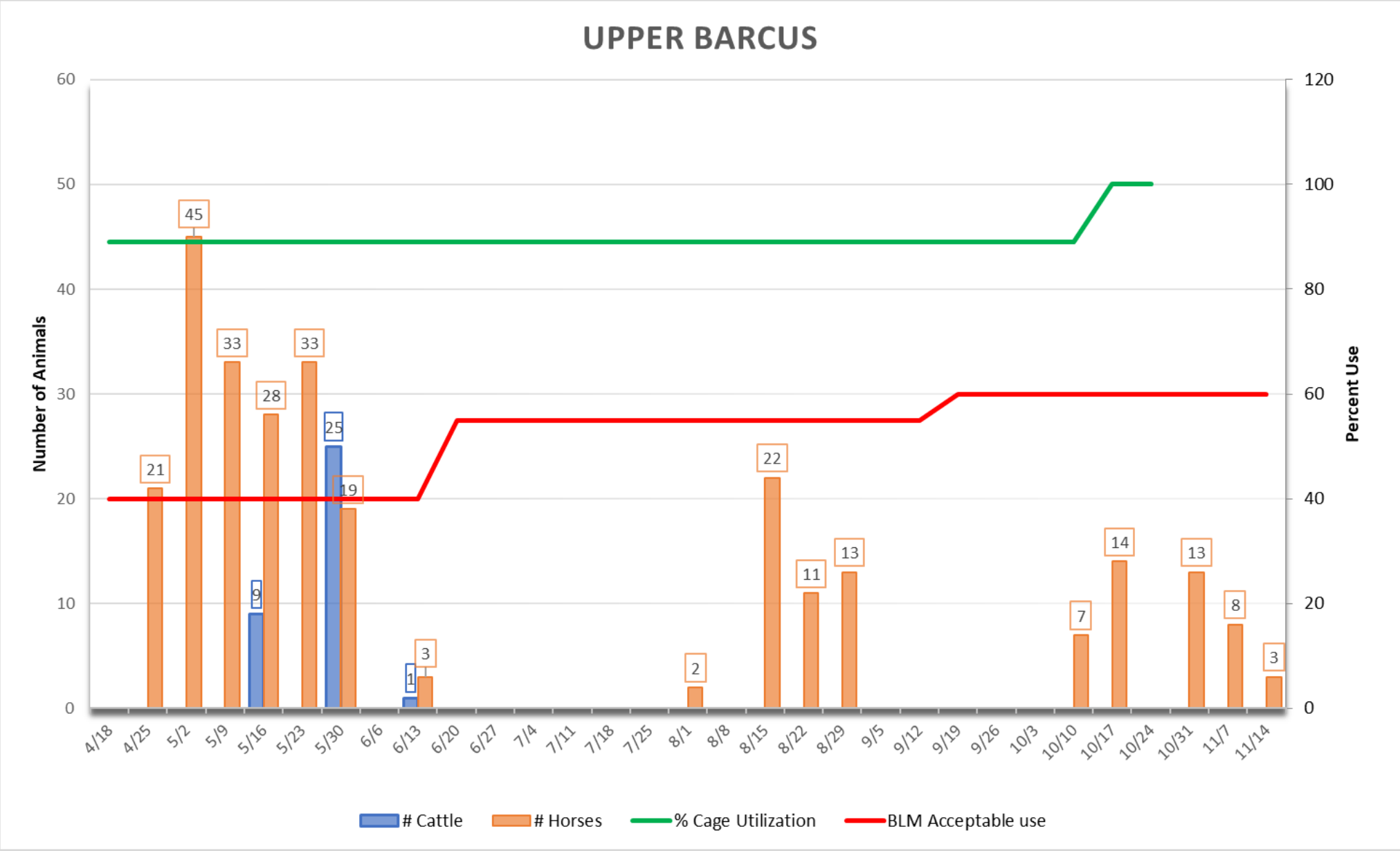


Chart 12.

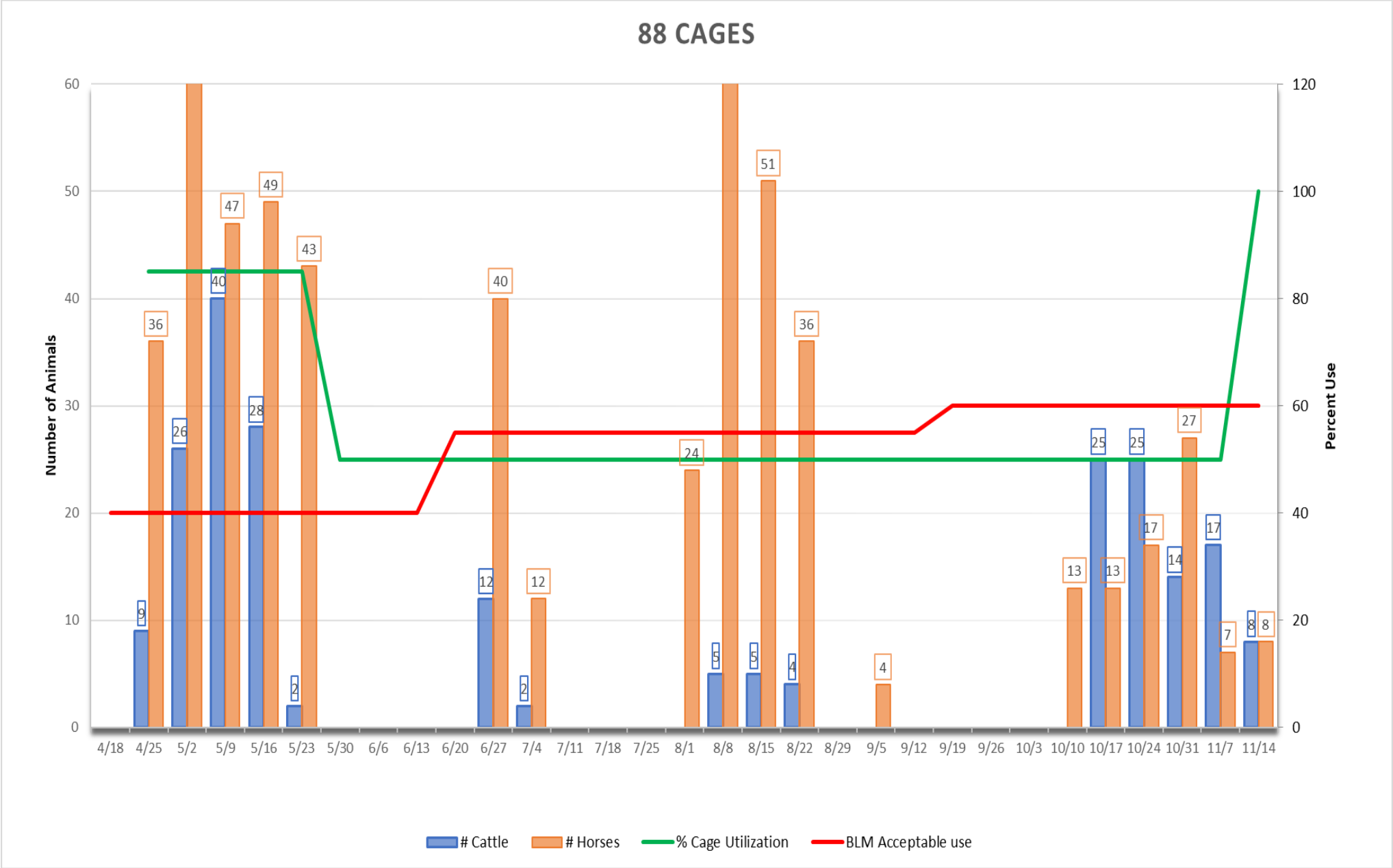


Chart 13.

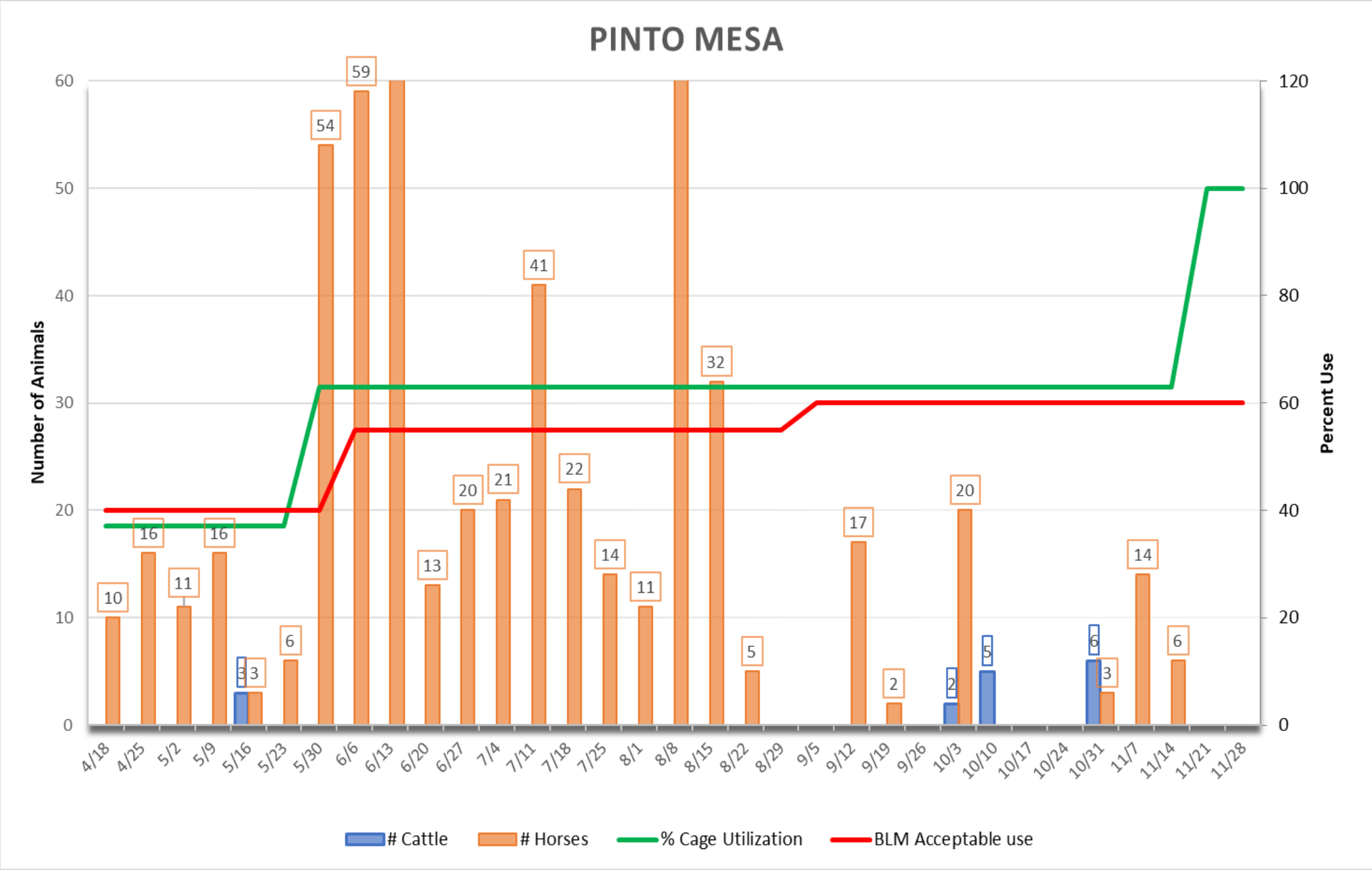


Chart 14.

