

Northern New Mexico Stockman's Association

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The Future of Livestock Grazing on New Mexico's National Forests Northern New Mexico Stockman's Association

Chicoma Allotment Assessment 2023

Project Team:

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National Institute of Food and Agriculture U.S. DEPARTMENT OF AGRICULTURE



CHICOMA ALLOTMENT 2023

Area:	8,188 total 3,218 grazeable
Allotment Owners:	6
Total Permitted Lives Possible Stocking Rat	tock: 157 te: 580 (based on 40% of 2023 forage production)
Allotment is permitted Livestock are consum	d at <mark>27.1%</mark> of actual carrying capacity. ing 10.8% of allowable use forage.
Transects:	Trail Head (TH) to Santa Clara Pueblo Jarosito Cienega Redonda
Monitoring dates:	5/22/23 8/3/23 9/20/23 10/18/23
Participants:	Dr. Cristóbal Valencia (Principal Investigator) Dr. Casey Spackman (Co-Principal Investigator) Donald Martinez (Co-Principal Investigator) Carlos Salazar (Allotment Representative/Producer Representative) Lionel Maestas (Producer) Linda Hutchison (Producer) Cornelio Salazar (Producer) Levi Lucero (Producer) Armando Gurule (Producer) Damian Velasquez (Producer) Lorenzo Salazar (Producer) Clara Suazo (Producer) Jeanette Suazo (Producer)

METHODOLOGY: Qualitative data was systematically gathered using ethnographic methods: face-to-face accompaniment in diverse social, political, and economic contexts of everyday life (Valencia 2015). The Project Team conducted participant-observation (DeWalt and DeWalt 2002) prior to livestock entry, during livestock grazing, and after livestock exit. The Project Team also attended cattle association meetings, annual feast days, fiestas, local county fair events, and meetings between producers and management agencies. During participant-observation the Project Team paid close attention to producers' descriptions, interpretations, and explanations of rangeland conditions and impacts on their livestock operations. The Project Team also focused on ranchers' management practices and decision-making processes. Dr. Valencia kept ethnographic field notes (Emerson et al. 2011) of participant-observation, recording what is meaningful and important to producers, how producers grapple with sustainability, how understandings of conditions and impacts emerge and change over time, and what knowledge ranchers rely on to make assessments and management decisions. Dr. Valencia also conducted structured and unstructured interviews (Warren and Karner 2015, Brinkmann 2013, Weiss 2004) with producers focusing on their descriptions, interpretations, and explanations of climate and rangeland conditions and impacts on livestock operations. Additionally, the Project Team conducted participatory mapping exercises (Robinson et al. 2016) with producers to plot forage, water, and wildlife observations. The Project Team also used visual and audio methods to record qualitative data (Warren and Karner 2015).

OBJECTIVE: Qualitative data produces culturally situated understandings of rangeland conditions and impacts on livestock operations. It supports the development of better management targets and more inclusive decision-making processes.

SUMMARY

- Utilization for the 2023 grazing season exceeded the allocated 40 percent use guideline. Utilization was 48.6% in 2023.
- However, cattle only consumed 10.8% of grazing season forage.
- Authorized livestock numbers were 27.1% of possible stocking rates.
- There is not a direct relationship between precipitation and forage conditions. Rather, forage conditions were more dependent upon stock water availability and elk presence.
- Rangeland assessments and stocking rates may be affected by ineffective montioring methods, excluding mountainsides, and undocumented pastures.
- Unmaintained infrastructure primarily roads and fences negatively impact conditions and operations.
- Boundary conflicts have a negative impact on conditions and operations.

CONDITIONS

The Chicoma allotment consists of large expansive and mountainous pastures as well as steep mountainsides. For example, The TRAIL HEAD to SANTA CLARA PUEBLO (right) is set in a steep canyon that descends 1,000 feet from the road. Livestock graze on the mountainside. There are several pastures that do not appear on USFS maps of the allotment. Producers are concerned that these areas are excluded from forage production calculations and reduce stocking rates set by the USFS. In October the relationships between



climate conditions and rangeland conditions led to observations about the relationships between forage, water, and wildlife. In CIENEGA REDONDA there was 1.7 inches less precipitation than the previous month, however, there was abundant grass. Producers calculated that good forage conditions were due to less elk use. Less elk use was contributed to the absence of stock water and running streams. This led producers to conclude that there is not a direct relationship between precipitation and forage production and that utilization is not a direct reflection of forage availability. Rather, forage conditions and utilization were more dependent upon stock water availability and elk presence.



Polvadera Creek originate in the allotment.

The JAROSITO transect is a wide and long pasture with running water in the bottom during May and showed heavy elk presence (left). The CIENEGA REDONDA transect is a large expansive depression with flowing water in May and showed heavy elk presence. By August there is little to no flowing water in all transects. Stock ponds and springs are mostly dry. Livestock must travel greater distances for water. This allotment is characterized by microclimates with varying precipitation rates. The Indio Creek, Mora Creek, Cañoncito Seco, Rio del Oso,

Existing exclusion cages used for USFS monitoring at the TRAIL HEAD to SANTA CLARA PUEBLO transect were made with chicken wire (right). Elk had consumed all of the forage inside the cage. Grass inside exclusion area was same height as grass outside. In Spring the elk had torn down the fence across the width of the pasture in the CIENEGA REDONDA. Fence repair by the Forest Service was limited to stringing broken posts from damaged barbed wire until late in the grazing season. Producers pointed to the presence of large elk herds as evidence of abundant forage and water. In October the FS built a new wildlife-friendly four-wire fence with smooth wire at the top and bottom across the pasture in Cienega Redonda. However, the fence did not extend into the forest canopy. Wildlife cameras in JAROSITO and CIENEGA REDONDA show elk arriving at dusk and grazing through the night.



Producers explained that conflicts over boundaries negatively impact rangeland conditions and livestock operations. The Chicoma allotment is bordered by Santa Clara Pueblo and the Valles Caldera National Preserve. Producers have been restricted from using traditional trails to move cattle back to base properties and to market through Santa Clara Pueblo. Producers feel that there is little interest among the current Pueblo leadership in cooperating in livestock production.



They pointed out that the Pueblo and the USFS act as co-sovereigns leaving Hispano producers at a disadvantage and subject to the power of both. As one producer put it, "dos agujas no se pican" or two equals will not challenge each other. For hispano producers this meant they were being treated as second-class citizens. Relatedly, producers have been unable to force the National Park Service to uphold its responsibility for constructing and maintaining the boundary fence between the Valles Caldera and the allotment. Finally, the allotment is difficult to access due to unmaintained roads. These boundary and access

factors place a extra burden on ranchers to move livestock over areas with insufficient forage and water adding stress to animals and rangeland resources.

PRACTICES

• Voluntarily reduce stocking rates.

RECOMMENDATIONS

- Deepen pond in Cienega Redonda.
- Hold NM Game & Fish responsible for elk management.
- No new fences that are not maintained.
- Put in place fence mitigation.
- Share information w/producers regarding fence policy and responsibilities.
- Locate easment documents for Baca Land & Cattle Co./Valles Caldera/Santa Clara Pueblo.
- Santa Clara Pueblo must replace boundary fence.
- Reach out to elk biologist at NMGF.
- New fences should have gates.
- Fix at least one road for access by improving drainage.
- Increase participation of USFS employees with decision-making power in meetings with producers.

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The following information is a summary of the data collected over the 2023 grazing season. Data was collected using the Rapid Assessment Methodology (RAM; Spackman et al., 2022). Summaries were produced using the Rangeland Data Analysis and Record program (RaDAR; rangelandradar.app) and include individual pasture assessments and the allotment averages for each collection period. This is a single year of data and should not be used to make long-term management decisions or increases/decreases in stocking rates. Multiple years of monitoring is required (minimum of 3-5 years) to begin developing management decisions (Holecheck et al., 2011). An explanation of report contents is explained below.

Biomass Availability (also called standing crop or production residuals) is the amount of vegetation, expressed as a weight per area, present during a given point in time, not excluded from grazing activity. Five clippings were taken along the transect, dried, and weighed. The five weights were then converted to pounds per acre based on a 0.96 ft² hoop and averaged to obtain biomass availability +/- standard error (variability in weights). It can be used as a grazing intensity guide during the season, if location and number of samples are representative of the landscape, to make temporary adjustments in livestock distribution.

Annual Forage Production is plant material collected from grazing exclusion cages, expressed as a weight per area, and used to assess forage production for an entire year. This an estimate of what the land can produce without grazing. Three cages were placed near each transect at the beginning of the grazing season. Samples were collected at the end of the season by clipping forage within a 0.96 ft² hoop, which was placed in the middle of each cage. Each sample was subsequently dried, weighed and converted to pounds per acre. The three clippings were averaged and a standard error calculated.

Estimated Stocking Rate is the calculation of animal unit equivalents (AUE) that the allotment could support for a duration of one month (AUM). Mid-season stocking rates were not calculated as stocking rates can only be estimated from annual forage production. Furthermore, individual pasture stocking rates were not calculated as grazable acres were only known for the whole allotment. Estimates are based upon the average collected annual forage production across the allotment, forest service provided grazable acres (pasture size in report), cattle forage demand of 26 pounds per day (SRM 1998), a conservative 40 percent forage use allocation (Holechek & Galt 2000), and a 30 day grazing period (Holecheck et al., 2011; Vallentine 2001). The AUM calculation equation is:

$$\frac{(annual production \times grazable \ acres \times use \ allocation)}{animal \ for age \ demand \ \times 30 \ days} = AUM$$

Percent Cover is the proportion of the ground surface that is covered by vegetation, litter, rocks, bare soil, or other attributes. It is used to assess distribution and composition of different material covering the ground. The assessment was done along a transect using the step-point method. At each step basal cover was recorded at the tip of the boot until 100 readings were taken. Each cover type was summed to give a percent. Percent cover is slow to change and should be looked at over several years (5 to 10 years) to provide insights about vegetation density, potential erosion, and livestock management (Holechek et al., 2011).

Vegetation Cover – Grasses is the percentage of grasses (grazing forage) by common name and scientific abbreviation (symbol) based on the amount of percent cover of vegetation along the transect. The percentage provides the land manager with species forage composition and diversity. Furthermore, changes in composition can be used as an indicator of grazing impact and vegetation trends over time.

Other Vegetation Cover is the percentage of vegetation that are not grasses based on percent cover of vegetation along the transect. This is similar to vegetation cover – grasses and can also be used as an indicator of forage and habitat for wildlife.

Forage Composition is the percentage of all grass species found along the transect even if cover was not vegetation; where nearest grass species was recorded on the datasheet. Additionally, height of each species is recorded by extending leaves upward and recording the average leaf lengths of all leaves. This provides and inventory and relative abundance (vegetation cover) or diversity of all grasses including their stubble heights. It identifies the specific combination and distribution of different species and helps assess the overall forage biodiversity within the plant community. Furthermore, the stubble heights give an estimate of grazing intensity and potential insight to make mid-season adjustments to grazing strategies (i.e., animal distribution and duration). Species are listed by their common name, scientific abbreviation (symbol), percent, with the addition of height and their minimum height grazing guideline (Holechek and Galt 2000).

Fecal Counts are used to estimate and monitor relative presence or absence of animals. It is not used to assess animal abundance but can be used generally as an indicator of increases or decreases in animal visitations over time (years).

Photos are used as a qualitative assessment to support quantitative information. They can be used as an illustrative record of the conditions that occurred at a given point in time. Ground photos when accompanied with a scaled ruler can be used to quantify cover or species composition, but are limited unless multiple ground photos are taken. Landscape photos can be used to demonstrate grazing intensity and correlated to the quantitative data.

Utilization

A summary of production and utilization is provided at the end of the reports (Table 1). Utilization is a guide and should not be used as a standard or threshold for range management decisions (SRM-RAMC 2018; Ruyle et al., 2007). Conservative grazing (30-40 percent utilization) is the recommended in the southwest to sustain or improve rangeland conditions an optimize livestock productivity (Holechek and Galt 2000). The following equation was used to calculate percent utilization:

 $\frac{(annual \ production \ - \ available \ biomass)}{annual \ production} \times 100 \ = \ percent \ utilization$

Physical Constraint of Animal Intake

Utilization is a very useful guide when all grazing species are accounted for. When multiple grazing species or uncontrolled grazers such as wildlife are present, it becomes difficult if not

impossible to determine how much each species has consumed in relation to utilization. This concept, known as resource partitioning, is an ongoing issue for rangeland managers. Currently there is no direct measurement to partition use on rangelands. However, forage intake of range cattle has been extensively researched (Vallentine 1990, McKown et al., 1991, and Holechek et al 2011) and a 1,000-pound mature cow consumes on average 26 pounds of dry forage per day (SRM 1998). Intake can vary depending on other factors such as reproductive status or environmental conditions but the scientifically accepted intake is between 2 and 2.6 percent of the animals body weight (NASEM 2016). Thus, a physical constraint of intake model can be used to calculate approximate cattle use on rangelands. This calculation uses the stocking rate equation, described previously, rearranging the parameters to solve for the desired utilization rather than animal units. It is not meant to be used for wildlife as too many variables exist that are not accounted for in equation. Furthermore, it is worth noting that this is a calculation, not a direct measurement of utilization can be found in Table 2. The equation used was:

 $\frac{(animal \ demand \ \times \ grazing \ duration \ \times \ permitted \ animals)}{(annual \ production \ \times \ grazable \ acres)} \times 100 = percent \ utilization$

Similarly, the equation can be rearranged to determine how much an individual animal would consume daily (animal demand) to account for the observed utilization level. This equation helps determines if there is any disparity between physical constraint of intake and the observed utilization level on the allotment. Excess intake above 26 pounds can be contributed to other grazing animals and environmental influences.

 $\frac{(annual \ production \ \times \ grazable \ acres \ \times \ observed \ utilization)}{(grazing \ duration \ \times \ permitted \ animals} = animal \ demand \ or \ daily \ intake$

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		R	aDAR -	Rangela	and Data	Analy	/sis & R	ecord		
Producer	Name:		Chicoma		Pasture Na	me:		Cienega	a Redonda	
Date:			8/3/2023		Collector N	lames:		FS &I	NMSA	
Transect	Number:				GPS Coord	inates:	36.	03331, -106.4	17667	(334°)
Notes:										NM STATE
Biom	nass Availa	bility	Pastu	re Size	Estimate	d Stocki	ng Rate	Annual	Forage Pro	duction
1487.2	± 180.7 lbs	s per acre	3218	acres	N/A	AUM		N/A	lbs per acr	е
Percent Cover Vegetation Cover - Grasses Other Ve				Vegetation	Cover					
Bare G	Ground	0	<u>Commo</u>	<u>n Name</u>	<u>Symb</u>	ool	<u>Percent</u>	<u>Commo</u>	n Name	<u>Percent</u>
Lit	ter	37	Kentucky	Bluegrass	POP	۲R	19	Toadfla	ax spp.	8
Vege	Vegetation 63 Oat sp		spp.	Oa	t	17	Dand	elion	1	
Rock (Rock (>3/4") 0		Arizona	Fescue	FEA	R	12			
			Wheatg	rass spp.	Agr	о	5			
			Rush	spp.	Rus	h	1			
		100					54			9
			1	Fo	rage Compo	osition				
<u>Commo</u>	on Name	<u>Symbol</u>	<u>Percent</u>	<u>Avg. Heig</u>	<u>ıht (inches)</u>	Minimu	m Stubble	Height Guid	line	
Kentucky	Bluegrass	POPR	36	2	2.5	2.5	Below Mi	nimum Heig	ht	
Oat	spp.	Oat	26	4	4.4					
Arizona	a Fescue	FEAR	25	4	4.1	4				
Wheatg	rass spp.	Agro	9	4	4.9	2.5				
Rush	n spp.	Rush	2	6	6.8 1.5					
Se	dge	Carex	1	-	1.5	1.5				
			99		5.5	2.5				
	Fecal Counts									
Horse	0	Elk	30	Cattle	30	D	eer	0		



		_				_		_		
		R	aDAR - I	Rangela	and Data	Analy	/sis & R	lecord		
Producer	Name:		Chicoma		Pasture Na	ime:		Cienega	a Redonda	
Date:			10/18/2023	3	Collector N	lames:		FS & I	NNMSA	
Transect I	Number:				GPS Coord	inates:	36.	03331, -106.4	17667	(334°)
	very dry c	onditions	, ponds are	dry along	with Jarosi	to draina	ige			
Notos										NM
Notes.										STATE
Biom	nass Availa	bility	Pastu	re Size	Estimate	d Stocki	ng Rate	Annual	Forage Pro	duction
1097.8 ± 153.2 lbs per acre			3218	acres	n/a	AUM		2125.3	± 480 lbs p	er acre
Percent Cover - Gra			Grasses		Other	Vegetation	າ Cover			
Bare G	Ground	1	<u>Commo</u>	n Name	Symb	ool	<u>Percent</u>	<u>Commo</u>	n Name	Percent
Lit	ter	44	Kentucky	Bluegrass	POP	'R	14	Forb Un	Iknown	14
Vege	tation	55	Sedge		Care	ex	9			
Rock ((>3/4")	0	Oat spp.		Oa	t	9			
			Mountai	Mountain Muhly		10	4			
			Interm. W	heatgrass/	AGI	N	3			
			Arizona	Fescue	FEA	R	1			
		100					40			14
			•	Fo	rage Compo	osition				
<u>Commo</u>	on Name	<u>Symbol</u>	<u>Percent</u>	<u>Avg. Heig</u>	ht (inches)	Minimu	m Stubble	Height Guid	line	
Kentucky	Bluegrass	POPR	35	3	3.3	2.5				
Oat	spp.	Oat	25		5.8		Below Mi	nimum Heig	ht	
Se	dge	Carex	16	3	3.9	1.5				
Mounta	in Muhly	MUMO	10	-	7.8	2.5				
Interm. W	/heatgrass	AGIN	9	-	7.7	4				
Arizona	a Fescue	FEAR	4	1	4.5	4				
			100							
	Fecal Counts									
Horse	0	Elk	15	Cattle	10	D	eer	0		



		R	aDAR - I	Rangela	and Data	Analy	/sis & R	ecord		
Producer	Name:		Chicoma		Pasture Na	me:		Jar	osito	
Date:			8/3/2023		Collector N	lames:		FS &	NNMSA	
Transect I	Number:				GPS Coord	inates:	36.0	02981, -106.4	14803	(338°)
Notes:										NM STATE
Biom	nass Availa	bility	Pastur	e Size	Estimate	d Stocki	ng Rate	Annual	Forage Pro	duction
699.6	± 129.3 lbs	s per acre	3218	acres	n/a	AUM		n/a	lbs per acr	e
Percent Cover Vegetation Cover - Grasses Other Vegeta			Vegetation	n Cover						
Bare G	Ground	0	<u>Commo</u>	n Name	<u>Symb</u>	<u>ool</u>	<u>Percent</u>	<u>Commo</u>	n Name	Percent
Lit	ter	63	Kentucky	Bluegrass	POP	R	14	Yarr	ow	7
Vege	tation	36	Arizona	Arizona Fescue		R	4	Cinqu	efoil	6
Rock (>3/4")	1	Rush	Rush spp. Rus		h	1	Dand	elion	2
			Prairie J	unegrass	KON	IA	1	Junipe	r spp.	1
		100					20			16
				Fo	rage Compo	osition				
Commo	n Name	Symbol	Percent	Avg. Heig	ht (inches)	Minimu	m Stubble	Height Guid	line	
Kentucky	Bluegrass	POPR	89	2	2.8	2.5				
Rush	n spp.	Rush	5	6	5.0	1.5				
Arizona	Fescue	FEAR	4	6	5.0	4				
West. W	heatgrass	AGSM	1	1	1.0	2.5				
Prairie J	unegrass	КОМА	1	6	5.0	2.5				
			100							
					Fecal Cou	nts				
Horse	0	Elk	31	Cattle	4	D	eer	0		



		R	aDAR - I	Rangela	and Data	Analy	/sis & R	ecord		
Producer	Name:		Chicoma		Pasture Na	me:		Jar	osito	
Date:			10/18/2023	3	Collector N	lames:		FS &	NNMSA	
Transect I	Number:				GPS Coord	inates:	36.02981, -106.44803			(338°)
Notes:									NM STATE	
Biom	nass Availa	bility	Pastur	e Size	Estimate	d Stocki	ng Rate	Annual	Forage Pro	duction
630.2	± 181.9 lbs	s per acre	3218	acres	n/a	AUM		1554.7	± 240 lbs p	er acre
Percent Cover Vegeta				Vegetati	on Cover - O	Grasses		Other	Vegetatior	Cover
Bare G	Ground	7	<u>Commo</u>	<u>n Name</u>	Symb	ol	<u>Percent</u>	<u>Commo</u>	n Name	<u>Percent</u>
Lit	ter	40	Kentucky Bluegrass		POP	R	34	Forb Un	Iknown	18
Vege	Vegetation 53									
Rock (Rock (>3/4") 0									
		100					34			18
				Fo	rage Compo	osition				
<u>Commo</u>	on Name	<u>Symbol</u>	<u>Percent</u>	<u>Avg. Heig</u>	ht (inches)	Minimu	m Stubble	Height Guid	line	
Kentucky	Bluegrass	POPR	100		3.9	2.5				
	Fecal Counts									
Horse	0	Elk	40	Cattle	2	D	eer	0		



		R	aDAR -	Rangela	and Data	Analy	/sis & R	ecord		
Producer	Name:		Chicoma		Pasture Na	me:		Santa	Clara TH	
Date:			8/3/2023		Collector N	lames:		FS &	NNMSA	
Transect I	Number:				GPS Coord	inates:	36.0)1583, -106. 4	45631	(319°)
Notes:									NM STATE	
Biom	nass Availa	bility	Pastur	re Size	Estimate	d Stocki	Stocking Rate Annual Forage Production			
1918.6	± 1019.3	os per acre	3218	acres	N/A	AUM		N/A	lbs per acr	е
Pe	Percent Cover Vegetation Cover - Grasses Other Veget				Vegetation	n Cover				
Bare G	Ground	15	<u>Commo</u>	<u>n Name</u>	Symb	ool	<u>Percent</u>	<u>Commo</u>	n Name	<u>Percent</u>
Lit	ter	33	Kentucky	tucky Bluegrass POPR 35		Yarr	ow	4		
Vege	tation	49	Squiri	Squirreltail		L	1	Thistle	e spp.	3
Rock ((>3/4") 3 Arizona Fescue		FEA	R	1	Dand	elion	2		
			Mountai	n Brome	BRM	IA	1	Рерре	rweed	2
		100					38			11
			-	Fo	rage Compo	osition				
Commo	n Name	Symbol	Percent	Avg. Heig	ht (inches)	Minimu	m Stubble	Height Guid	line	
Kentucky	Bluegrass	POPR	95	3	3.3	2.5				
Mountai	in Brome	BRMA	2	1	8.0	4				
Sec	dge	Carex	1	3	3.0	1.5				
Squir	reltail	ELEL	1	4	4.0	4				
Arizona	Fescue	FEAR	1	2	8.0	4				
			100							
					Fecal Cou	nts				
Horse	0	Elk	11	Cattle	3	D	eer	0		



		R	aDAR - I	Rangela	and Data	Analy	/sis & R	ecord			
Producer	Name:		Chicoma		Pasture Na	me:		Santa	Clara TH		
Date:			10/18/2023	8	Collector N	lames:		FS &	NNMSA		
Transect	Number:				GPS Coord	inates:	36.0	01583, -106. 4	45631	(319°)	
Notes:	Ocular est	stimate of cage in/out similar across site								NM STATE	
Biom	nass Availa	bility	Pastur	e Size	Estimated Stocking Rate			Annual	Annual Forage Production		
978.6 ± 233.9 lbs per acre 3218 acres			acres	n/a	AUM		1590.0	± 230 lbs pe	er acre		
P	Percent Cover Vegetation Cover - Grasses Other V			Vegetation	n Cover						
Bare G	Ground	18	<u>Commo</u>	n Name	Symb	ool	Percent	Commo	n Name	Percent	
Lit	ter	32	Kentucky	Kentucky Bluegrass		POPR		Forb Un	Iknown	15	
Vege	Vegetation 43		Interm. W	heatgrass	AGI	N	1				
Rock (>3/4") 7											
		100					28			15	
			-	Fo	rage Compo	osition					
<u>Commo</u>	on Name	<u>Symbol</u>	<u>Percent</u>	Avg. Heig	ht (inches)	Minimu	m Stubble	Height Guid	line		
Kentucky	Bluegrass	POPR	97	5	5.1	2.5					
Interm. W	/heatgrass	AGIN	3	6	6.8 4						
			100								
	Fecal Counts										
Horse	0	Elk	24	Cattle	0	D	eer	0			



RaDAR - Rangeland Data Analysis & Record										
Producer	Name:		Chicoma		Pasture Na	me:		r	n/a	
Date:			8/3/2023		Collector N	lames:		r	n/a	
Site AVER	AGES:		1,2,3		GPS Coord	inates:		n/a		n/a
Notes:		AVERAGES								NM STATE
Biomass Availability Pasture Size Estimated Stocking Rate Annual Forage P						Forage Pro	duction			
1368.5 ± 302.3 lbs per acre 3218 acres					N/A	AUM		N/A	lbs per acr	9
Pe	Percent Cover Vegetation Cover - Grasses Other Veget					Vegetatior	Cover			
Bare G	iround	5	<u>Commo</u>	n Name	Symb	ol	<u>Percent</u>	<u>Commo</u>	n Name	<u>Percent</u>
Lit	ter	44	Kentucky	Bluegrass	POP	R	23	Yarr	ow	4
Veget	tation	49	Arizona Fescue		FEA	R	6	Toadfla	ax spp.	3
Rock (>3/4")	1	. Oat spp. C		Oa	t	6	Cinqu	iefoil	2
			Wheatg	rass spp.	Agr	0	2	Dand	elion	2
			Rush	spp.	Rus	h	1	Thistle	e spp.	1
			Prairie J	unegrass	KON	IA	0	Рерре	rweed	1
			Squiri	reltail	ELE	L	0	Junipe	er spp.	0
				Fo	rage Compo	osition				
<u>Commo</u>	<u>n Name</u>	<u>Symbol</u>	<u>Percent</u>	Avg. Heig	ht (inches)	Minimu	m Stubble	Height Guid	line	
Kentucky	Bluegrass	POPR	73	3	3.0	2.5				
Arizona	Fescue	FEAR	10	5	5.2	4				
Oat	spp.	Oat	9	4	1.4					
Wheatg	rass spp.	Agro	3	4	4.9	2.5				
Rush	spp.	Rush	2	e	6.2 1.5					
Sec	dge	Carex	1	2	2.3 1.5					
West. Wheatgrass AGSM 1 8.3 2.5										
					Fecal Cou	nts				
Horse	0	Elk	24	Cattle	24 Cattle 12 Deer 0					0





		R	aDAR - I	Rangela	and Data	Analy	/sis & R	ecord		
Producer	Name:		Chicoma		Pasture Na	me:		Cienega	a Redonda	
Date:			10/18/2023	3	Collector N	lames:		<u> </u>	n/a	
Site AVER	AGES:		1,2,3		GPS Coord	inates:		n/a	-	n/a
Notes:										NM STATE
Biom	nass Availa	bility	Pastur	e Size	Estimate	d Stocki	ng Rate	Annua	Forage Pro	duction
902.2 ± 100.3 lbs per acre 3218 acres			acres	2899.0	AUM		1756.7	± 200 lbs p	er acre	
Pe	Percent Cover Vegetat			Vegetati	on Cover - O	Grasses		Other	Vegetatior	n Cover
Bare G	Ground	9	<u>Commo</u>	<u>n Name</u>	<u>Sym</u> t	ol	<u>Percent</u>	<u>Commo</u>	<u>n Name</u>	<u>Percent</u>
Lit	ter	39	Kentucky	Kentucky Bluegrass POPR		'R	25	Forb Un	ıknown	16
Vegetation 50 Sedge		dge	Care	ex	3					
Rock (>3/4") 2		2	Oat	spp.	Oa	t	3			
			Mountai	n Muhly	MUN	10	1			
			Interm. W	heatgrass/	AGI	N	1			
			Arizona	Fescue	FEA	R	0			
				Fo	rage Compo	osition				
<u>Commo</u>	<u>n Name</u>	<u>Symbol</u>	<u>Percent</u>	Avg. Heig	ht (inches)	Minimu	m Stubble	Height Guid	line	
Kentucky	Bluegrass	POPR	78	4	1.3	2.5				
Oat	spp.	Oat	8	5	5.8					
Sec	dge	Carex	5	3	3.9	1.5				
Interm. W	/heatgrass	AGIN	4	7	7.5	4				
Mountai	in Muhly	MUMO	3	7	7.8 2.5					
Arizona	Fescue	FEAR	1	1 14.5 4						
	Fecal Counts									
Horse	0	Elk	26	26 Cattle 6 Deer				0		0







Table 1. Chicoma Allotment Production and Use								
	Mid-Year	Year-End	Annual	Utilization as	Stocking			
	Biomass	Biomass	Production	a Percent	Rate			
	(lbs/acre)	(lbs/acre)	(lbs/acre)		(AUM)			
Jarosito	699.6 ± 129.3	630.2 ± 181.9	1554.7 ± 240.0	59.5				
Cienega Redonda	1487.2 ± 180.7	1097.8 ± 153.2	2125.3 ± 480.0	48.3				
Santa Clara TH	1918.6 ± 1019.3	978.6 ± 233.9	1590.0 ± 230.0	73.8				
Averages	1368.5 ± 302.3	902.2 ± 100.3	1756.7 ± 240.0	48.6 ± 7.4	2899 ± 330			

Table 2. Chicoma Allotment Physical Constraint of Intake of Cattle								
	Utilization as a Percent	Cattle Utilization as a Percent	Other Utilization as a Percent	Cow Intake from Observed Utilization (pounds/day)				
Allotment Average	48.6	10.8	37.8	116.7				

Chicoma Allotment

Key Area	Date	Measurement
TH to Santa Clara	6/26/2023	hang
	8/3/2023	1.28
	9/4/2023	2.07
	10/19/2023	down
	Total	3.35
Jarosito	6/26/2023	hang
	8/3/2023	0.38
	9/4/2023	2.31
	10/16/2023	1.15
	Total	3.84
Cienega Redonda	6/26/2023	hang
-	8/3/2023	0.08
	9/4/2023	2.61
	10/18/2023	0.91
	Total	3.6