

Appendix 1
Monitoring
and Adaptive Management

Purpose	Attribute	Method	Frequency	Location	Adaptive Management
adjust timing and duration of pasture use.	seasonal use	ocular estimate	end of scheduled grazing period for each pasture	key areas	If use on 30% or more of the full capacity range within the pasture exceeds conservative grazing intensity in any two consecutive years or in any two years out of five, pasture would receive full growing season rest the following year. If use on less than 30% of the full capacity range within the pasture exceeds conservative grazing intensity in any one year, scheduled numbers and duration would be adjusted appropriately in the AOI.
avoid over use of localized areas	utilization pattern	Map use areas based on ocular estimate of use	end of each scheduled use period for each pasture	entire pasture	Identify areas of localized use exceeding conservative levels and adjust distribution by salting, access to water, herding or changes in scheduled stocking. If use on more than 5% of a pasture is repeatedly heavy to severe, adjustments in stocking or duration of use will be made in the AOI.
adjust stocking rates to keep livestock use within carrying capacity	forage utilization	Ocular estimate (Holechek grazing intensity Holechek, J.L. and D. Galt. 2000. Grazing Intensity Guidelines.	Spring each year for pastures used in winter or yearlong	key areas	Data will be evaluated with other monitoring information to determine if stocking rates need adjustment. . If use levels consistently exceed desired levels, including years of average or above average precipitation and forage production stocking rates will be adjusted accordingly.
adjust stocking rates to keep livestock use within carrying capacity	forage utilization	Rangelands 22(3), pg 11-14) Spot checking of estimates may include clip and weigh, grazed plant, grazed plant height, or stubble height methods.	Fall each year for pastures used during the growing season	key areas	
adjust stocking rates to keep livestock use within carrying capacity	forage production	clip and weigh, ungrazed either cages or before use	end of growing season	representative areas	
adjust stocking rates to keep livestock use within carrying capacity	precipitation	NOAA Glenwood NM site data	daily	Glenwood NOAA site	
evaluate stable or upward trend in soil and watershed condition	soil protection	paced transect 100 pts at key areas. Measure hits on plants, rocks, bare soil and litter.	concurrent with forage utilization estimates	key areas	If trend declines in three consecutive years, management changes would be implemented to address cause of trend.
adjust timing and duration of pasture use.	actual use by pasture	Permittee self report and supply supporting documentation at annual validation meeting.	November each year	entire allotment but report by each pasture	If use on 30% or more of pasture exceeds conservative grazing intensity in any two consecutive years or in any two years out of five, pasture would receive full growing season rest the following year. If use on less than 30% of pasture exceeds conservative grazing intensity in any one year, scheduled numbers and duration would be adjusted appropriately in the AOI.
maintain infrastructure investment.	condition of range developments	inspect concurrent with other visits to allotment	annually	selected range developments	Permittee would be instructed to maintain or reconstruct developments found to be non-functional.
track long term changes in range and soil condition	range and soil condition and trend	re-measure Parker 3 step cluster and paced transects. Score by R3 83 handbook	every 10 years	existing transects	If trend declines or transects are less than fair condition and is attributable to livestock use or management, management changes will be implemented to address cause of change
provide adequate regeneration of riparian woody plants to maintain or improve habitat	riparian woody plant use	ocular estimate of hedging class by species and age class.	fall each year	specified riparian areas.	If annual use on sprouts/seedlings of palatable woody riparian plants in a reach exceeds 25% heavily hedged livestock would be removed from the pasture. AOI would adjust subsequent years scheduled use period, duration, stocking and management to address use in riparian..
adjust livestock management in riparian areas	riparian herbaceous plant use	ocular estimate	end of scheduled grazing period for each pasture	specified riparian areas.	If use on 30% or more of a riparian area exceeds specified grazing intensity in any two consecutive years or in any two years out of five, management changes would be addressed in the AOI. .
Evaluate riparian condition and trend	riparian function	Proper Functioning Condition	every 10 years	specified riparian areas.	If PFC rating declines or is non-functional due to livestock use, management changes will be implemented to address cause of condition.