

EST 1979

F.S.
Monitor

MONITOR COMPLEX ALLOTMENT ANALYSIS INFORMATION

BACKGROUND AND PROJECT DESCRIPTION

The Monitor Complex Allotment on the Toiyabe National Forest occurs on the Tonopah Ranger District. The current permittee, Stone Cabin Partnership, is a family business owned by the Clifford Family which includes brothers Roy Clifford and Joe Clifford Jr. and a sister Margaurite Boscovitch. The family has held the grazing permit on the Monitor Complex Allotment since 1978. They are currently permitted 542 head of cattle for a season of 6/10 to 10/10, for 2158 animal months.

The Monitor Complex allotment was originally created in 1980 by combining four allotments: Barley Creek, Willow Creek, Hunts Canyon, and Stone Cabin. In 1986 the Stone Cabin unit became a separate winter allotment. Today the Monitor Complex contains approximately 120,000 acres within the three remaining units. The land forms in each unit are primarily mountain canyon lands which open into major canyon bottoms. The majority of the suitable grazing land lies within these drainages. Of the total allotment acreage only 49% has been identified as suitable for cattle grazing; most of this is secondary range with only 13,593 acres classified as primary range -- only 12% of the total allotment acreage. 49% of the suitable range was rated as being in poor or worse condition in the Range Analyses conducted in 1972, 1975, and 1976 on each of the three units.

The Monitor Complex allotment is located approximately 30 miles northeast of Tonopah, Nye County, Nevada. The allotment is situated in the southern portion of the Monitor range and extends onto the southern portion of the Table Mountain Wilderness. Elevation on the allotment ranges from 6,000 to 9,700 feet. The allotment contains many canyons with steep side slopes. Rocky peaks, ridges, and rock outcrops are common. Pinyon and juniper are climax species on major portions of this allotment. Their climax states are characterized by old mature trees with little or no understory vegetation such as grasses, forbs, or shrubs. Bare soil is common on these sites. Curlleaf Mountain Mahogany dominates on many south facing slopes. There are a few scattered stands of aspen and cottonwood, with willow and other brush species located along riparian areas. The combination of rough steep slopes, pinyon and juniper woodlands with its large areas of barren terrain, make a majority of the allotment difficult and unsuitable to graze. These conditions make it extremely difficult to move livestock between the relatively small and scattered areas of suitable range.

When Stone Cabin Partnership acquired the grazing preference on the Monitor Complex in 1978 the number of cattle waived by the previous permittee was 575. Although there was a consistent history of documentation relative to the units being overstocked, The Partnership was subsequently issued a Term Grazing Permit for the full preference of 575 cattle.

Site analysis data included in the Range Analyses conducted on the three units between 1968 and 1976 indicates a capacity of only 594 animal months. Tentative grazing capacities derived from forage production data simply calculate the total pounds of forage produced on the suitable range within the

unit and then allow that a cow/calf pair will consume so many pounds per day. 33 pounds per day was allowed in this calculation which indicates these tentative capacities: (1) Willow Creek - 59 animal months; (2) Barley Creek - 312 animal months; and (3) Hunts Canyon - 223 animal months. This equates to about 150 cattle for a four-month season or the current permitted number of 542 cattle for 33 days. Based on this data, the preference allowed at the time of permit waiver in 1978 was 73% above proper stocking.

In 1979 a four-unit rest-rotation system was implemented. This system included the three Monitor Complex units and the Stone Cabin Allotment. An Allotment Management Plan prescribing this system was prepared in 1980. In this Plan it was agreed that the Range Analysis data would be used as base-line information because it reflected information collected under a continuous season-long system. There would be no adjustment in cattle numbers based on the anticipation that implementation of a more intensive, rest-rotation management system would improve forage conditions to offset the potential reduction in numbers or season of use or both. To implement the new system, provision was made for an interim stocking schedule for permitted numbers with a "Memorandum of Understanding" covering permittee voluntary non-use (96 cattle) for a five-year period from 1981-1985. The interim period was set up to test the rest system and firm up the grazing capacity.

The system ran fairly smooth through the 1979 and 1980 seasons. During the 1981 season the livestock were run on the Hunts Canyon and Stone Cabin units. It quickly became obvious that the Stone Cabin Allotment was not compatible for use as part of the rest-rotation system and in 1986 it was determined that the Stone Cabin unit should be operated as a separate allotment.

That separation resolved some management problems but it did not address on-the-ground resource problems occurring on the Monitor Complex. During the 1986 grazing season, resource specialists began expressing alarm at use levels and on-the-ground conditions. These concerns coupled with the badly deteriorated condition of much of the allotment led to the recommendation that the Monitor Complex Allotment be made a priority for administration. That year a series of grazing impact studies were initiated to determine grazing capacity in animal months, i.e. the amount of forage available for cattle grazing while meeting the needs of the resource. Those surveys have been continued through 1989. The studies from 1986 through 1988 were taken through a complete grazing cycle and indicate the grazing capacity to be 534 animal months or about one month of grazing if the permitted numbers remain unchanged.

The 118,544 acres that comprise the Monitor Complex Allotment have been broken down into their respective units by acres. They are as follows:

<u>UNIT</u>	<u>Acres NESL</u>	<u>Acres BLM</u>	<u>TOTAL</u>
Hunts Canyon	53,009		53,009
Willow Creek	36,625	12,385	49,010
Barley Creek	<u>28,910</u>	<u> </u>	<u>28,910</u>
Total	118,544	12,385	130,929

The physiography of the allotment grades from relatively low flat-lying alluvial fans in sagebrush communities on the floors of Monitor Valley,

elevation 6,000 feet, to rolling foothills containing extensive pinyon-juniper communities. The grade then climbs to steep and rugged aspen communities on the crest of the Monitor mountains, elevation 9,700 feet.

The Hunts Canyon unit is made up of three main drainages: Hunts Canyon, McCann Canyon, and White Sage Canyon. Hunts Canyon has a perennial Class II fisheries stream, while McCann and White Sage Canyons have only perennial springs.

The Barley Creek unit is made up of two main drainages: Barley Creek and Cottonwood Creek, both of which are perennial Class II fisheries.

The Willow Creek unit is made up of two main drainages: House Canyon and Willow Creek. Willow Creek has a perennial stream, while House Canyon has very limited amounts of water sources, consisting of intermittent localized springs.

Several conditions are at variance with the Desired Future Conditions prescribed in the Forest Plan:

Desired Future Condition

95% of all rangelands will have been brought to satisfactory condition. Ch.IV, pg.4.

Forage utilization standards for Sagebrush/Mountain Brush and Riparian vegetative types, under a rest-rotation grazing system will not exceed 45% and 55%, respectively when rangeland is in unsatisfactory condition. Ch.IV, pg.29.

Complete livestock adjustments needed to obtain an acceptable balance between available livestock forage and livestock numbers and season of use. Ch.IV, pg.31, item 28.

Specific riparian area Standards and Guides, and greater emphasis on rangeland management will have significantly benefited riparian area dependent resources.

Current Condition

Only 49% of the total allotment acreage is suitable for cattle grazing. Of this suitable range, 49% is in poor or worse condition. 45% of the suitable range is also in a downward trend. 71% of the vegetative species composition on the suitable range is shrubs having low Resource Value Ratings for cattle grazing.

Grazing Impact data shows that the date allowable use is reached after a 6/10 turn-out date is approximately 7/10. Use beyond that date becomes extremely excessive. Individual site analyses, conducted in August, show use levels of 70-90%. Riparian forage utilization was measured at 80-100% use levels in all areas in Hunts Canyon on November 1, 1988.

The allotment is currently overstocked by approximately 75%. The indicated capacity is 534 AM's compared to the 2168 AM's currently permitted.

Soil mantles in the valley floor alluviums indicate past water tables several feet above existing tables. Soil characteristics indicate that some areas which were wet meadows have

Ch.IV, pg.6.

Manage riparian areas to achieve or maintain a medium or high ecological status. Ch.IV, pg.42, item 5.

Strive to maintain and achieve at least 80% of the natural bank stability for streams supporting trout populations. Ch.IV. pg.42.

changed to dry meadows, and the riparian potential may have been changed to a lesser new potential due to the down-cutting and lowering of the water table.

There are occasional residual evidences that the bottomlands once supported highly productive stands of (1) Basin Wildrye/Sagebrush, (2) Basin Wildrye, (3) Dry Meadow, and (4) Wet Meadow types. Current riparian vegetation is limited to streamside situations, generally no more than 5 feet on either side of live water, and is composed of the more resistant species such as Kentucky Bluegrass and various annuals. Nebraska Sedge, which is a key species for riparian types in Central Nevada, is generally only found in fenced administrative sites or in a few fenced enclosures found in some drainages.

Much of the stream channels have concave with eroding (unstable) streambanks and shallow water depths. There are limited to non-existent pools and undercut banks in Hunts Creek. Overall, throughout the entire Hunts Creek stream system, fisheries habitat has been altered by livestock grazing to the extent that the habitat is not adequate for fish species to complete their life cycle. Trampling and grazing use has altered the stream's hydrogeomorphology, accelerated channel downcutting, entrenchment, and fisheries habitat loss.

PUBLIC ISSUES, MANAGEMENT CONCERNS, AND OPPORTUNITIES

Objectives and issues were developed and identified using the Coordinated Resource Management Planning (CRMP) process and interdisciplinary review by resource specialists. Dominant concerns were expressed by environmental and ranching interests.

ENVIRONMENTAL ISSUES AND CONCERNS

Environmental issues and concerns emphasized the impacts to riparian areas, fisheries habitat as impacted by riparian vegetation and streambank degradation, loss of climax vegetation, ecological changes from wet meadows to dry meadows, loss of meadows and the impacts on sage grouse habitat, grazing impacts on elk and deer calving and fawning areas, and water quality and its impacts on fisheries habitat. These issues were expressed by both environmental interests participating in the CRMP process and an Interdisciplinary Team on assignment from the Intermountain Forest Service Regional Office in Ogden, Utah. This ID Team made an on-the-ground evaluation of conditions on the allotment with special emphasis on the riparian resources. They reviewed Forest Planning documents, allotment historical data, and management planning information and noted the following management concerns:

Soils Concerns:

1. The soils are nonplastic, noncohesive, and have a high sand component. As such they are highly susceptible to erosion.
2. Active as well as old channel cuts occur in much of the bottomlands--some as much as 20 feet deep.
3. Soil compaction due to livestock trampling occurs throughout the bottomlands.
4. Soil mottles in the valley floor alluviums indicate that stream entrenchment and downcutting has lowered the water table several feet, thereby changing wet meadows to dry meadows and degrading the ecological status.

Vegetation Concerns:

1. Production and cover of vegetation on upland areas is generally low.
2. Present upland vegetation is composed of seral species such as cheatgrass and sandberg's bluegrass in the heavily grazed areas and western needlegrass in the more lightly grazed areas.
3. Bottomland vegetation contains only relic remnants of the climax vegetation species that should occur as highly productive stands.
4. Current riparian vegetation is limited to streamside situations. Nebraska sedge, a key species in riparian areas, has virtually been eliminated.

Fisheries Concerns:

1. Fisheries habitat composed of streambanks and instream materials are limited and in extremely poor condition.

2. Fisheries habitat in Hunts Creek has been altered by livestock grazing to the extent that the habitat is not adequate for fish species to complete their life cycles.

LIVESTOCK MANAGEMENT ISSUES

The livestock permittees are concerned about the type of grazing system, reductions in permitted livestock, wildhorse and elk herd impacts on grazing use, and effects of natural events versus livestock grazing on riparian areas. During the CRMP process the following concerns were expressed:

1. Permittees want season-long use instead of rest-rotation grazing systems.
2. Wildhorse use of the allotment is impacting livestock grazing use.
3. Reduction of permitted livestock numbers.
4. Proper use of riparian areas and are impacts to these areas caused by livestock grazing or natural events.
5. Emphasis placed on wildlife and fisheries habitat is not economically compatible with the impacts of reductions in livestock numbers.
6. Elk impacts in relation to grazing use and fence maintenance.

OPPORTUNITIES

The CRMP Committee identified a number of opportunities to improve resources and described them as objectives for management consideration:

1. Improve livestock, wildhorse, and wildlife distribution through the development of water sources and, where appropriate, stock trails.
2. Increase forage for livestock and wildlife through appropriate range improvement techniques and management systems.
3. Monitor elk impacts to riparian areas and known winter range to identify and separate livestock and elk use.
4. Reduce the wild horse population in Willow Creek to an appropriate number.
5. Monitor migration of wild horses between Willow Creek and Stone Cabin Valley.
6. Improve soil and watershed condition to good or better using best management practices.
7. Develop a management system that is economically feasible, ie., minimum benefit cost ratio of 1:1.
8. Improve riparian systems and fish habitat by increasing Habitat Capability Index (HCI) to good or better.
9. Improve range conditions to satisfactory or better.

ISSUE STATEMENTS

Related issues have been organized under general headings. Discussions relative to issues, concerns, and objectives are considered in formulating Issue Statements. Issue Statements to be addressed in the analysis process follow (elements of the environment and issues considered, by which each alternative must be evaluated appear in parentheses):

1. Impacts to climax riparian and upland vegetation (Riparian Areas, Range Vegetation, Soil Resources).
2. Loss of wet meadow habitat (Riparian Areas, Wildlife & Fish, Soils Resources).
3. Poor water quality and its impact on fisheries habitat (Water Resources, Wildlife & Fish).
4. Impacts to streambank stability (Riparian Areas, Wildlife & Fish, Soils Resources).
5. Soil erosion hazard potentials (Soil Resources, Riparian Areas, Range Vegetation).
6. Impacts to soil compaction by livestock trampling (Soil Resources, Soil Instability, Riparian Areas).
7. Socio-economics and impacts to permittees caused by implementation of the proposed action (Social & Economic Effects, Wildhorses, Wildlife & Fish).
8. Permittee preference for a season-long grazing season (Range Vegetation, Riparian Areas).
9. Impacts on livestock grazing and management by wildhorses (Range Vegetation, Wildhorses, Social & Economic Effects).
10. Impacts on livestock grazing and management by elk (Range Vegetation, Wildlife & Fish, Social & Economic Effects).
11. Impacts to wilderness preservation (Wilderness Resource, Visuals Resource, Wildfire & Prescribed Burning).
12. Effects on recreation (Wilderness Resource, Recreation, Wildlife & Fish, Visuals Resource).
13. Effect on wildlife populations and habitat, including elk, muledeer, and sagegrouse (Wildlife & Fish, Riparian Areas, Range Vegetation).

AFFECTED ENVIRONMENT

PERMITTEE RANCHING OPERATIONS

Generations of the Clifford Family have owned and operated the Stone Cabin Ranch since 1873 and they have been livestock permittees with the Forest Service since 1911. In the mid 1930's when the Taylor Grazing Act went into effect they were also granted permits for grazing on lands administered by the Bureau of Land Management. They now operate under a cow-calf operation, grazing federal lands year-round.

In 1978, they purchased the permitted cattle on the Monitor Complex Allotment and were subsequently granted the associated grazing privileges. They report that "This business venture cost the Stone Cabin Partnership well in the excess of \$200,000.00 in order to secure (we thought at the time) additional grazing privileges to supplement our Stone Cabin operation so that a moderate livelihood and a successful operation would be afforded the Partnership. Under this program which now consisted of the Stone Cabin Grazing Allotment and the newly acquired Monitor Grazing Complex, we were able to increase our cattle herd to a sizable herd of 750 to 800 head of cattle and thus provide security for our continuance in the livestock industry."

The Stone Cabin Ranch makes a plea not only for "a moderate livelihood and a successful operation", but for relief that they "might be able to survive." Current capacity data indicates that stocking should be adjusted downward by 75%. This decision, according to the permittees, "could spell disaster for our survival in the cattle industry because it represents a problem of 'homeless' cattle."

At various times the permittees have agreed that there are resource problems on the allotment. On August 22, 1986, at the time range specialists requested early removal of livestock, the Cliffords seemed to agree that Hunts Canyon was overstocked. Roy Clifford mentioned that he felt the unit should not be stocked with more than 150 head but that the present rest-rotation system is forcing too many cattle in the unit. However, the Cliffords reported that their cattle in Hunts Canyon looked good and that there was still plenty of forage in the higher country. They also thought that the bottoms looked no worse this year than they do when they normally gather. They indicated that the solution to the problems on the Monitor Complex would be for them to plan the grazing management and for the Forest Service to stay out of it. They felt that, without intervention, they could greatly improve their range in five years.

Areas of the Monitor Complex that are the most sensitive to use by livestock are meadows and canyon bottoms. The permittees readily agree that cattle graze off the forage in meadows and riparian zones before they will move to adjacent drier upland sites. During the planning meeting for development of the 1987 annual operating plan, the permittees disputed the validity of the riparian standards and insisted that it was necessary to eat out the bottoms before any use could be made of the sidehills as the water is in the bottoms and the cows have to drink. They also asserted that riding would not be adequate since even

if a rider was present every day, due to the nature of the country and the location of the water, it would be impossible to keep the cattle out of the bottoms.

Then in 1988, the Cliffords reaffirmed their opinion that the riparian standards were not reasonable and that there was no way they could graze the current numbers and seasons and comply with them. They asserted that they thought the area had not declined in condition in the past 50 years due to livestock grazing.

The permittees disagree that the primary reason for over-utilization on the allotment is caused by livestock and they demand that the Forest Service take into consideration the effect of wildhorse herds and the degree of use that they impose on the allotment. They also claim that the Forest Service has disregarded the fact that the same area provides winter range and spring-fall transitional range for the Monitor Elk Herd.

In order for an Allotment Management Plan to be workable, it must be developed in close consultation with the permittees. It must be a plan that the permittees will use with some degree of reliability; if not, then the plan will fail. Although there has been a number of meetings with the permittees discussing probable adjustments and the need for a change in management, their response has been pessimism that any plan could be developed that would be acceptable to both the Forest Service and the permittees.

RANGE SUITABILITY

Soils

Based on range analysis data, the soil condition on the allotment ranges from poor to excellent, with the majority in the fair condition classification. The soil trend was reported as mostly stable, with a small percentage being either up or down. The erosion hazard varies throughout the allotment due to various slope percentages and percent ground cover. Surface losses average between .5 to .75 inches over 80% of the area to an extreme of 2 inches over 10% of the area. 100-year flood events during the early 1980's and as recently as 1989 indicate serious erosion hazards as head-cutting, gully channeling, and debris deposition were widespread.

Most soils on the allotment have developed from alluvial deposits, colluvial material from steep-igneous and sedimentary parent material, highly extrusive material such as rocks originating from volcanic material, and from highly metamorphasized quartzite, which makes up the bulk of resistant sand-like soil in Nevada. Soils along drainage bottoms are generally deep and potentially very productive. These soils have very heavy textures and lack large amounts of unweathered material. The epipedon and upper horizons tend to be dark and very fertile due to large amounts of accumulated decomposed organic matter.

Tenuous and thinly developed soils are most common on steep side slopes of canyons. The epipedon and upper horizons tend to be light-colored, contain large amounts of unweathered material, and have very poor fertility due to small amounts of accumulated organic matter.

Where alluvial fan deposition has taken place, soils are of moderate productive capability and tend to be moderately fertile.

Vegetative Types

The Monitor Complex Allotment ranges between 6000 and 9700 feet in elevation. Within this elevation range, five primary vegetative types occur. The acreage breakdown for each type within the suitable rangeland is as follows:

	<u>ACRES</u>			
	Primary Range	Secondary Range	TOTAL	%
Grassland	0	0	0	0
Meadow	163	0	163	-1
Sagebrush	9605	20970	30575	53
Mountain Brush	2633	6023	8656	15
Pinyon-Juniper	1181	17072	18253	32
Aspen	0	132	132	-1
TOTAL	13582	44197	57779	100

Vegetation on the Monitor Complex Allotment is very diversified and site specific. In low elevational areas tall and low sagebrush dominate most of the community. Some intermixed grasses such as needle and thread grass, indian rice grass, junegrass, squirrel tail, and sandberg bluegrass are also found in the low-lying areas, along with numerous forbs. Low sagebrush is most common on undulating terrain, while tall sagebrush is more commonly found in swale areas. Other species of shrubs associated with the low lying areas are rabbitbrush, saltbrush, and winterfat.

As you move to higher elevations, dominance of vegetation is shown by extensive stands of pinyon-juniper. These extensive stands tend to encircle the allotment and in some instances, the woodlands will extend out onto the lower areas, past the Forest boundary. Extensions of pinyon-juniper into higher elevational areas are more common on south slopes, but they will extend into mountain mahogany communities on north facing slopes. Understory vegetation in pinyon-juniper woodlands varies from very sparse grasses and forbs to dense shrub stands, depending on the density of the pinyon-juniper.

As you move even higher in elevations, the basins are composed of mountain big sagebrush-grass-forb communities. Some aspen stands exist in high mountain draws and meadows, along with wet meadow type plants such as Carex and Juncus species.

The range analysis data shows an excessively high composition of shrubs in the suitable range vegetation. Both the Willow Creek and Hunts Canyon units record in excess of 80% shrubs in the composition, while Barley Creek has the significantly higher percent of grass composition. The total average production of forage species is very low at 126 pounds/acre.

Unit	Percent Composition			% Slope	% Bare Ground	#'s Forage Prod./Acre
	Grass	Forbs	Shrubs			
Hunts Canyon	8	4	88	29	24	125
Willow Creek	12	5	83	11	35	97
Barley Creek	43	16	41	18	25	158
TOTAL	63	25	212	58	84	380
AVERAGE	21	8	71	19	28	126

Resource Value Rating

The Resource Value Rating (RVR) for livestock grazing of the species composition is likewise extremely low. RVR's are rated as follows:

Low--not relished and normally consumed only to a small degree or not at all. Species contributing significantly to low RVR's in all but the meadow and aspen vegetative types include rabbitbrush, sagebrush, pinyon pine, and juniper species. Sandberg bluegrass and squirrel tail, which are significantly represented as grass species, also have a low RVR.

Moderate--moderately relished and moderately consumed. Species of a moderate RVR include needle grass and mountain mahogany in the pinyon-juniper, sagebrush, and mountain brush types; and wheatgrasses in the meadow and aspen types.

High--highly relished and consumed to a high degree. Species of a high RVR include bitterbrush, Carex, indian ricegrass, and junegrass in the pinyon-juniper, sagebrush, and mountain brush types. Carex, Nevada bluegrass, Kentucky bluegrass, and mountain brome constitute 52% of the high RVR in the meadow types and mountain brome and Nevada bluegrass make up 22% of the high RVR in the aspen type.

RESOURCE VALUE RATING PERCENT BY CLASS

VEGETATION TYPE	LOW	MODERATE	HIGH	FORBS & OTHER
Pinyon-Juniper	70	7	10	13
Sagebrush	75	4	5	16
Mountain Brush	39	28	8	25
Meadow	4	17	52	27
Aspen	17	27	22	34

The 85% of the suitable range represented in the sagebrush and pinyon-juniper vegetative types have in excess of 70% of the vegetation in low RVR's and less than 10% with high RVR's.

Vegetation Condition

Of the 57,749 acres of suitable range, 115 acres were in excellent condition at the time of the Range Analyses; 20,042 acres were in good condition, 9,605 acres were in fair condition, 19,487 acres were in poor condition, and 8,500 acres were in very poor condition. The Hunts Canyon unit contained 79% of the very poor range while the Barley Creek unit contained 55% of the good condition

range. The Hunts Canyon and the Willow Creek units both show in excess of 60% of the suitable range in poor to very poor condition. Overall, 49% of the allotment is in poor or worse condition.

Range Conditon Classes

UNIT	VP	%	P	%	F	%	G	%	E	%
Hunts Canyon	6755	26	8900	34	4530	17	5925	23	100	-1
Barley Creek	825	5	2535	14	3563	20	10953	61	15	-1
Willow Creek	920	7	8052	59	1512	11	3164	23	0	0
TOTAL	8500	15	19487	34	9605	16	20042	35	115	-1

Satisfactory condition range is defined as having a stable or upward trend in soil and vegetation and being in Fair or better condition. 52% of the suitable range on the Monitor Complex Allotment is in unsatisfactory condition having condition classes and trends which fall in categories of Fair and downward or lower.

SATISFACTORY CONDITION

CONDITION	WILLOW CREEK	HUNTS CANYON	BARLEY CREEK	TOTAL	PERCENT
Exc Up		100			
Exc Static			15		
Good Up		3310			
Good Stat	3164	2615	10290		
Good Down			662		
Fair Up		142	40		
Fair Stat	852	4388	2180		
Fair Down	660		1343		
Poor Up		1667			
Poor Stat	6118	6403	2392		
Poor Down	1934	830	143		
VP Stat		5955			
VP Down	920	800	825		
TOTAL	13648	26210	17840	57749	100%
TOT F Down	9632	15655	4703	29990	52%

Ranges in Good Condition are generally satisfactory although they produce less forage than those in excellent condition. The better perennial plants predominate, but there are some less palatable plants. Erosion, if it occurs at all, is slight.

Ranges in Fair Condition with downward trends are definitely unsatisfactory. Both soil and plant cover have been distinctly damaged, and restoration is no longer a quick and easy task. Valuable forage plants are considerably reduced in stand, their places occupied by less palatable perennial grasses, weeds, and shrubs. Annuals have usually increased. There is less total plant cover and litter and there is likely to be active erosion. If neglected, fair ranges slip quickly to a poorer condition. If handled carefully, they can be gradually restored.

Ranges in Poor Condition have lost so much of the forage stand and topsoil that they produce only a fraction of the forage grown on similar ranges in good or excellent condition. Few of the more valuable perennial forage plants remain, and low-value annuals or perennial weeds and shrubs predominate. Removal of the topsoil by washing or blowing has exposed the subsoil or left a gravel "pavement". The soil has little organic matter and a low available moisture-holding capacity. There is active sheet and gully erosion. Runoff is rapid and heavy with silt. The job of restoring poor ranges to full productivity is a major one. Years, even decades, may be required to gradually build back the organic matter in the topsoil that marks satisfactory condition.

Ranges in Very Poor Condition have only a sparse stand of low-value plants, mostly annuals or unpalatable shrubs. Grazing capacity is very low. The topsoil, with its organic matter, is largely gone, and the soil can hold little moisture for plant growth. The remaining soil is exposed to serious wind and water erosion. Gullies are extensive. Runoff from sudden summer storms forms flash floods, muddy with silt. Under such conditions, natural restoration is a very long, arduous, and uncertain process.

Vegetation Trend

Trends given vegetative types are estimated to reflect the results of the livestock management and stocking levels that have influenced the physiological processes of forage plants and the site potential of the ecosystem.

Vegetative types given downward trends are areas that will need a change in management and utilization levels before any vegetative recovery can be expected. Types which show no apparent trends or upward trends are areas in which the current stocking level, and/or management has had little or no influence.

Continued stocking at the present level, under the present management system, will reduce vegetative vigor and ground cover on 45% of the suitable range area of the allotment.

Trend data shows that only 1% of the primary range was in an upward trend, while 12% of the secondary range was in an upward trend. Overall, only 9% of the suitable range was in an upward trend while 45% was in a downward trend. This data corresponds directly to critical use areas on the allotment. Those areas which are in very poor condition also have downward trends. Those zones are the canyon bottoms and streamside areas. The poor condition areas with no apparent trend are generally in rougher topography and are not keyed to the critical use zones. The good condition range in the Hunts Canyon unit is relative to the upward trend shown on the crested wheatgrass seedings.

TREND

<u>RANGE TYPE</u>	<u>UP</u>	<u>%</u>	<u>STATIC</u>	<u>%</u>	<u>DOWN</u>	<u>%</u>	<u>TOTAL</u>
Primary	163	1	7193	153	6237	46	13593
Secondary	5097	12	19449	44	19610	44	44156
TOTAL	5260	9	26642	46	25847	45	57749

The hunts Canyon unit showed the most deterioration with 74% in a downward trend. The crested wheatgrass seedings accounted for a portion of the upward trend on 20% of this unit.

TREND

UNIT	UP	%	STATIC	%	DOWN	%	TOTAL
Hunts Canyon	5220	20	1630	6	19361	74	26211
Barley Creek	40	-1	14877	83	2973	17	17890
Willow Creek	0	0	10134	74	3514	26	13648
TOTAL	5260	9	26641	46	25848	45	57749

Sensitive Plants

The following is a list of sensitive plants found on the allotment:

Species	Habitat	Elevation
Trifolium andersoni var. beatleyae	Volcanic outcrop flat, low areas	5000-7300
Coryphantha vivipara var. roses	Limestone of gravelly hills	5000-9000
Asragalus serenoii var. sordescens	Gentle slopes and flats	5000-6800
Frasera pahutensis	Loose volcanic soil	7200-7300
Silene scaposa var. lobata	Gravelly meadows	7500-9000
Cymopterus nivalis	Cirques	9000-11550
Opuntia pulchella	Sandy soil	3900-7000

Grazing Suitability

Of the total acreage of 118,544 acres, 60,795 acres or 51% is recorded as lands having no capacity to carry cattle on a sustained-yield basis. Only 12% of the allotment is classified as primary range.

GRAZING SUITABILITY

	PRIMARY RANGE	SECONDARY RANGE	UNSUITABLE/NON-RANGE	TOTAL
ACRES	13593	44156	60795	118544
%	12	37	51	100
AVG % SLOPE	9	21	41	

2.2.8 Grazing Capacity

The 1986, 1987, 1988, and 1989 Grazing Impact Studies on the Monitor Complex Allotment were conducted at or near the date of proper use in each respective unit. The basic data computations, Grazing Impact Analyses forms, Photo Field Records, and maps are assembled in the respective studies.

To aid in these studies, 32 agronomy cages (14 in the Barley Creek unit, 12 in the Hunts Canyon unit, and 6 in the Willow Creek unit) were installed in key use zones to simulate ungrazed plots from which direct measurements and comparisons with grazed plots could be made. Utilization levels were determined by clipping and weighing plots both inside and outside of the agronomy cages. Clipped plot data and photographs of the cages are included with the study information. After "setting sights" by clipping and weighing, utilization estimates were made for use zones between agronomy cages and mapped on topographic maps.

Forage utilization standards from the Toiyabe Forest Land And Resource Management Plan were used as maximum standards in the development of allowable use criteria. The standards from the Plan when a rest or deferred management system is used on unsatisfactory condition range is 45% for sagebrush/grassland vegetative types and 55% for riparian/wet meadow types. Other limiting factors justified lower allowable use standards for specific sites, such as the deteriorated sites in upper Hunts Canyon and "cow lot" condition areas in Willow Creek.

ESTIMATED GRAZING CAPACITY IN AM's

<u>YEAR</u>	<u>HUNTS CANYON</u>	<u>WILLOW CREEK</u>	<u>BARLEY CREEK</u>	<u>TOTAL</u>
1986	260	218	--	478
1987	---	142	333	475
1988	<u>182</u>	<u>--</u>	<u>467</u>	<u>649</u>
TOTAL	442	360	800	1602
AVERAGE	221 (147)	180 (120)	400 (267)	534 W/Rest Provided
1989	--	148	213	361

The data collected during the first three years completed a rest-rotation cycle on the three grazed units. Each unit was grazed twice and rested once; therefore, the average estimated capacity for that three-year period allows for the year of rest. The average capacities for those three years, with rest provided, are Hunts Canyon -- 221 AM's, Barley Creek -- 400 AM's, and Willow Creek -- 180 AM's. The total average annual allowable use is 534 AM's; rounded to the nearest 10, it equates to 130 cattle for a four-month grazing season. This is a 75% adjustment from the currently permitted 2158 AM's.

Since only two units are grazed each year, the total allowable capacity varies from year to year. An average capacity of 534 AM's is not justified on an annual basis, especially when the two lower capacity units are used together.

UNIT CAPACITIES WITH REST PROVIDED

<u>Year</u>	<u>Hunts Canyon</u>	<u>Barley Creek</u>	<u>Willow Creek</u>	<u>Capacity</u>
1	221	Rest	180	401
2	Rest	400	180	580
3	221	400	Rest	<u>621</u>
Average				534

The 1989 Impact Studies, which begin a new rest-rotation cycle, indicate a more severe adjustment with a capacity of only 361 AM's when the Barley Creek and Willow Creek units are used and Hunts Canyon is rested. However, since this data can not be used in averaging capacities without having data through the next complete grazing cycle, it is presented here to supplement the data collected in the previous years in these respective units. The data shows comparable results for the Willow Creek unit; however, the indicated capacity for the Barley Creek unit is almost half of the average from the previous two years' studies. This indicates a need to be conservative in stocking the Barley Creek unit.

In arriving at capacity figures from grazing impact studies, it is recognized that utilization by wildlife and wildhorses is included in the data. Estimates of relative utilization by big game and wildhorses can be estimated from pellet-plot fecal counts; however, this data was not collected during the studies because, in the professional judgements of the range specialists performing the studies, wildlife and wildhorse use was not significant at the specific locations of the grazing impact studies due to differences between livestock and other herbivores in grazing patterns, species utilized, seasonal variations and related factors.

Since livestock numbers and seasons of use (actual AM's grazed) are known, levels of utilization are usually related solely to domestic livestock use and grazing capacity estimates are determined accordingly. Wildlife and wildhorse needs, as related to the current situation, then hinge on their specific management objectives. Making more or less forage available for wildlife or wildhorses, providing needed ground cover, or related factors is therefore accomplished in establishing levels of allowable forage use. For instance: the Forest Plan maximum percent utilization for mountain brush and grassland in unsatisfactory condition is 45%. If wildhorse use constitutes a grazing conflict, adjustments in allowable use for livestock may be required. Thus the 45% allowable may be adjusted to 40% in that particular use zone.

VISUAL RESOURCES

The visual character of the Monitor Complex Allotment is that of a combination of accessible and remote, mountainous areas that show some, but very little influence of recent human disturbance. The abundance of geologic formations, wildlife, and the diversity of flora are also viewed as important visual resources. Riparian areas and streamside vegetation offer unique visual contrasts to the desert environment.

CULTURAL RESOURCES

There are several historic mining settlements and evidence of archeological sites existing within the Monitor Complex Allotment. There are also several historical points of interest located adjacent to the road in McCann Canyon. The old stage route through McCann Canyon and the site of the old stage stop are the most evident points of interest here. Throughout the allotment there are many areas of archeological value. This includes areas with ancient rock art, chipping areas, and pinyon shelters.

WATER

Water resources on the Monitor Complex Allotment are generally of high quality. There are numerous springs and seeps in many of the drainages running off the Monitor Mountain Range. There are four main perennial streams on the allotment. These streams include Cottonwood Creek, Barley Creek, Willow Creek, and Hunts Canyon Creek. There are also numerous beaver ponds in Cottonwood and Barley Creeks that support fish populations and beaver.

Precipitation on the allotment varies between 6 inches at lower elevations and 22 inches at the higher elevations. Snow is the primary source of moisture from October through April. However, during the summer months, high intensity thunder storms can drop 2 to 3 inches of rain in less than half an hour.

FIRE

As a natural phase of most ecosystems, fire recycles vegetation through the nutrient cycle, controls species composition and structure of the community, and rejuvenates decadent vegetation into useful fertilization products. Even though burning frequently benefits all land users and resources, it can also be disastrous to an ecosystem, depending upon site specific characteristics. Fire can also add to increased pollution of the air. Under state regulations, before any kind of burning procedure takes place, the state air quality board must be contacted. Within the allotment there are a number of areas for which there is a potential to increase desirable vegetation through the use of prescribed burning. This type conversion by burning could ultimately increase the grazing capacity.

FUELWOOD

Located in the Willow Creek unit of the allotment, there are seven designated areas set up as commercial cordwood areas. These seven areas total 938 acres and are located in House Canyon. These sales were set up for commercial taking of green cordwood and to improve wildlife habitat.

RECREATION

There are no developed campground areas within the allotment. Dispersed recreation is the main form of recreation occurring throughout the allotment with the heaviest use occurring during the summer and fall months in the form of camping, horseback riding, fishing, and hunting. Barley Creek drainage is a popular dispersed camping unit and has limited camping facilities. The cooler environment of the riparian habitat, association with a scenic stream, and

recreational fishing opportunities offer an attractive retreat for recreationists from the Reno and Las Vegas areas as well as local communities. The period of greatest recreational use is from June through October. The present grazing season is from June 10 to October 10.

WILDERNESS

On December 5, 1989, the Nevada Wilderness Bill designated 98,000 acres of the Monitor Mountain Range as the Table Mountain Wilderness. This area is a rough rectangle encompassing mostly high elevation lands. Important land form types include Table Mountain Lands, Mountain Buttress Spur Lands, and Dip Slope and Cliff Lands. The unit consists of a flat range from 7,000 feet along the east and west boundaries to over 10,000 feet on Table Mountain itself. Large aspen groves occur over much of the mountain, creating an environment unique in Central Nevada. Special features on Table Mountain include five streams with fisheries, an introduced herd of Rocky Mountain Elk, and outstanding scenery.

The Table Mountain Wilderness southern boundary cherry stems out the Barley Creek drainage up to the confluence of Barley Creek and Cottonwood Creek; it then swings southeasterly across House Canyon summit and then easterly around the Willow Creek Administrative Site. All of the Barley Creek unit north of the main fork of Barley Creek is included within the Table Mountain Wilderness. Although the wilderness boundary includes part of the northwestern area of the Willow Creek unit, none of the suitable range lies in wilderness.

The Wilderness Act of 1964 calls specifically for the management of various resources. Any management activities must be carried out in a manner compatible with the wilderness concept, that is, "managed to preserve its natural condition with the imprint of man's work substantially unnoticeable." Where previously established, livestock grazing is permitted to continue in wilderness. Any adjustments in the numbers of livestock permitted to graze in the wilderness will be made as a result of revisions in normal grazing and land management planning and policy setting processes, not because of wilderness designation. Permittees are required to maintain range improvements necessary to the livestock operation or the protection of the range, such as fences and water developments.

WILDHORSE MANAGEMENT

The management and protection of wild free-roaming horses and burros on lands administered by the Forest Service were entrusted to the Secretary of Agriculture by the enactment of Public Law 92-195, commonly referred to as the Wild Free-Roaming Horse and Burro Act of 1971. The Act has been amended by section 404 of the Federal Land Policy and Management Act of 1976 and section 14 of the Public Rangelands Improvement Act of 1978. The objective in managing wild free-roaming horses and burros and their progeny on National Forests is to provide for their protection, management and control, and to maintain a thriving ecological balance in the areas they inhabit.

Wild free-roaming horses have been an integral part of the southern Monitor mountains for decades. Progeny from strays of early emigrants, as well as abandoned and stray animals from early mining booms and settlement of homesteads account for much of the current wild horse populations. In the past, it was common practice for local ranchers to release studs with good

blood to upgrade the herds. Roundups would occasionally be held and suitable animals would either be sold or kept on the ranch, broken, and used as cow ponies. Adding to the population are remnants and descendants of the Clifford "steeldusts". These iron-gray colored horses were bred by the Clifford family and add much color to the population.

The Monitor Complex Allotment covers portions of the 409,000-acre South Monitor Wildhorse Territory which includes most of the Hunts Canyon unit, and the Barley Creek and Willow Creek units. The territory is divided into two units, the South Monitor Management Unit and the North Monitor Management Unit. This subdivision is necessary due to a topographical separation of the territory and the distinct migration and herd behavior of the wild horse populations. The boundary dividing the Management Units is the McCann Canyon road in the middle of the territory.

Although records show that the South Monitor herd population is between 250 and 300, most of these numbers are located south of Georges Canyon on the Stone Cabin and Saulsbury Allotments. Historically, however, at one time there were wildhorses in the Hunts Canyon area. Local stockmen asserted that they had disposed of at least 500 head, 175 during the period from 1926 to 1931. In 1950-51 a closing order was given, and most of the wildhorses were removed. Since that time, only one visual observation of horses has been made in Hunts Canyon: In 1972 eight wildhorses were actually seen in the Hunts Canyon area. Reports in the early 1970's continued to make estimates, but neither estimates nor actual sightings have been recorded since 1974.

Documentation of wildhorse activity in Barley Creek is virtually non-existent. The Barley Creek unit does extend onto the southern portion of Table Mountain and records do show some limited sightings in that area. The last recorded sightings were in 1978 when a dead horse, apparently shot by a deer hunter, was found on Table Mountain and a stud with two mares and a colt were observed at the upper end of Cottonwood Canyon --- both of these observations were on the Table Mountain Allotment.

In 1972 there were an estimated 35 horses using the Willow Creek unit year-round. Since the BLM Willow Creek division fence was built in June 1972, numbers declined to 10 head by 1978. That year an intensive study of the entire Table Mountain Wildhorse Territory located these horses in two bands: 3 horses in the Burnt Cabin Flat and Upper Indian Garden area and 7 horses in the area from Round Knoll to Wild Cat Canyon.

The BLM Willow Creek division fence was used to include approximately 12,000 acres of BLM lands under Forest Service administration with the Willow Creek unit. When the fence was constructed, a water system with troughs was installed on the Willow Creek side of the fence. According to the permittees, wildhorses from the Stone Cabin Valley side pushed the fence over to get to the water and thus the numbers increased in this area. The troughs in this water system have since been relocated. This observation was also made in 1983 when District Ranger Glade Quilter counted 20 horses in 3 bands and recorded that it was his impression that the horse bands entered the Monitor Wildhorse Territory from the BLM lands either through a broken fence or an open gate. A 1986 count of horses on the BLM Willow Creek unit located 17 head in the flat between Wildcat pipeline and Round Knolls, and in 1987, 27 head were counted in the same area in the BLM pasture.

By most standards this is not a large number of wildhorses. The rugged terrain makes most of the area unsuitable for horse habitat and therefore the population remains low and scattered. Most bands move between National Forest system and BLM lands on a daily basis. It appears that the horses move up and water in the canyons each night and morning, and then move down to the flatter areas, which are often BLM lands, to feed during the day. Movement also appears to be governed by the need for cover, which is available in the pinyon-pine thickets at the mouths of the canyons on the Forest. The general consensus among area locals is that mountain lion populations restrict both horse populations and movement to the fringes of the pinyon-juniper zone.

Because the wildhorse population in this area is so small and scattered, significant impacts on other resources have not been noted. Wildhorses within the management area appear to be existing within the tolerable limits of the management objective for the Table Mountain Wildhorse Territory Management Plan which is to maintain a viable population of wildhorses in harmony with a thriving ecological balance. In 1982 a draft action plan describing management objectives for the North Monitor Unit recommended that population levels in this area be maintained between the limits of 15 and 35 animals. Current census information indicates that the population is within this limit.

The presence of wildhorses was raised as an issue in the initial CRMP meetings, therefore Dawn Lappin of Wild Horse Organized Assistance (W.H.O.A.) was invited and did participate in the 1989 meeting. During that meeting recommendations were made by the permittees to 1) Set the appropriate wildhorse management level for the Willow Creek unit at six head, and 2) That the Forest Service pursue a relocation program for horses in the Willow Creek unit.

FISHERIES

Barley Creek, Cottonwood Creek, and Hunts Canyon all have fishable waters. German brown trout, brook trout, and rainbow trout are the three main species each with self-sustaining populations of small 4 to 8-inch fish.

Level IV General Aquatic Wildlife Surveys were conducted in Hunts Creek in November 1988. Four stations were selected, one in the upper headwater area, one in the middle section, and two in the lower section of Hunts Creek. One of the lower stations was located inside the Hunts Canyon Administrative Site for comparison to the second located just upstream and outside the administrative site. These stations were considered representative of Hunts Creek as a whole. Spawning activity by both brown and brook trout was observed in all areas surveyed.

<u>GAWS TRANSECT LOCATIONS</u>	<u>*EXISTING HCI</u>	<u>**DESIRED HCI</u>
Inside Admin. Site	66--Fair	>75
Above/Outside Admin. Site	32--Poor	>75
Mud Springs at Hunts Creek	42--Poor	>75
Hunts Creek at Flask Spring	41--Poor	>75

*HCI = Habitat Capability Index.

HCI: <60 = Poor; 60-74.9 = Fair; 75-84.9 = Good; >85 = Excellent

**Desired HCI of >75 (Good) is recommended for resident non-T&E trout streams.

LIMITING FACTORS AT ALL LOCATIONS SAMPLED ON HUNT'S CREEK

<u>Problem</u>	<u>Existing</u>	<u>Desired</u>
Lack of pool habitat	<1%	50%
Lack of bank cover	62%	100%
Poor Bank stability	37%	75%
Poor bank vegetation stability	36%	>75%
Lack of undercut banks	<1%	>25%
High percent embeddedness	59%	<25%
Excess ungulate damage (bank trampling)	56%	<25%
Insufficient canopy density	18%	>75%
Lack of juvenile trout rearing habitat	<1%	50%

Assessments made from these surveys indicate that (1) existing trout habitat is in very poor condition (avg. HCI = 45) with the lack of streamside vegetation being the primary factor causing the low HCI's, and (2) existing numbers of brown and brook trout are below potential and desired levels because of poor habitat quality.

WILDLIFE

The Monitor Complex Allotment contains a diverse cross-section of wildlife habitat ranging from salt-desert shrub communities to drainages containing riparian areas. Extensive homogeneous stands of vegetation do not support an abundant diversity of wildlife populations. However, the more extensive the ecotone areas are, the more numbers and diversity of wildlife will occur. The most important wildlife habitats within the area are those associated with water.

Mule deer populations have been increasing from 1970 to the present time which has resulted in parts of the allotment becoming important spring and summer range. The Willow Creek area and the Hunts Canyon area are considered historical winter range.

Pronghorn antelope are also found on the allotment. The areas antelope are most commonly found in are the western and eastern edges of the allotment, and constitute some of the highest populations of antelope on the Toiyabe National Forest.

Huntable populations of chukar and sage grouse also exist throughout the allotment. Raptors are very common and, due to the abundance of cliffs and other suitable nesting sites, it is believed that the southern portion of the Monitor Range is the most important raptor breeding area on the District, and possibly all of Central Nevada.

There are no known threatened or endangered birds, reptiles, amphibians, fish, or mammals that occur on the allotment. There are, however, 17 species on the sensitive list, most of which occur in the riparian habitats: red fox, golden eagle, ferruginous hawk, prairie falcon, goshawk, Cooper's hawk, sharp-shinned hawk, spotted bat, barn owl, screech owl, flammulated owl, great horned owl, pygmy owl, burrowing owl, long-eared owl, short-eared owl, and saw-whet owl.

ELK HABITAT

Fifty Rocky Mountain Elk were introduced and released at the confluence of Barley Creek and Cottonwood Creek on the Monitor Complex Allotment on January 15th, 1979. Population establishment and expansion to approximately 300 head has occurred since that time. Table Mountain serves as primary summer/fall range, and primary winter range use patterns observed thus far have been centered on the White Sage/Hunts Canyon area of the Monitor Complex Allotment. The Barley Creek drainage is used by the elk as a primary transitional route in the spring and fall as migration occurs between summer and winter ranges. Some elk calving may occur in the upper reaches of the Barley Creek unit. Use of the Willow Creek unit appears to be currently restricted to winter use by a small group of bull elk.

During the past several field seasons, the Forest Service has gathered a considerable amount of monitoring data to evaluate the impacts of the elk herd on the summer range, particularly Table Mountain. This data and observations indicate that the existing elk numbers are reasonably compatible with the available habitat and other resource uses on Table Mountain.

However, on those portions of the elk range to the south of Table Mountain, more particularly the Hunts Canyon area, there has been very little habitat monitoring. We recognize our lack of knowledge concerning the impacts of elk on the winter range and the spring/fall transitional range. Although we do not expect that significant adverse impacts are occurring with present numbers, we have very little actual data to support this.

Observations record that the White Sage/Hunts Canyon area, on both BLM and National Forest System lands, has received winter/spring use since 1981; however, in 1983 a group of elk remained in the area through August. When cattle and elk are in the area at the same time, elk have remained segregated from livestock, remaining on the higher benches while cattle grazed the canyon bottoms. This segregation has been much more striking in this area than anywhere else on the elk range. Elk use has been concentrated in the saltbush/low sagebrush vegetation type probably due to mild winter climate, a selection of grasses and shrubs, and the availability of forage from early shrub green-up which begins in February. Some later use occurs in the drainages and small riparian areas, but no significant levels of elk utilization have been documented for any part of the winter range.

Prior to the introduction of elk to this area in 1979 it was agreed between the Forest Service and the Nevada Department of Wildlife that the Monitor Elk Herd would be an intensively managed and controlled herd, one which will not replace other use by domestic livestock or indigenous wildlife. If problems do occur, innovative management practices will be implemented to minimize or eliminate conflicts.

In order to address management concerns and required actions for intensive management of the elk herd, an elk monitoring plan was first developed in 1985 and is currently in the final draft of an updated revision. This plan is cooperatively developed between the Forest Service, Bureau of Land Management, and the Nevada Department of Wildlife. It stipulates methods of both population management and habitat management and includes monitoring techniques

to document elk numbers and to evaluate impacts on vegetation and other natural resources. Key objectives are 1) To maintain a population of approximately 300 elk through sport harvest for the next three years; at that time if elk impacts indicate a need for reduction in elk numbers, then negotiations for the adjustment will be made and 2) To identify and delineate key management areas within the known winter range---a minimum of two reconnaissance inspections will be conducted each winter to determine the extent of the winter range, key use areas, and conflicts with other uses; long-term monitoring sites have been selected in the Hunts Canyon/White Sage area and a systematic monitoring program is in process.

In his written comments on the revision of the elk monitoring plan in 1987, Joe Clifford Jr. specifically referred to damage of Table Mountain fences at the northern boundary of the Barley Creek unit: "We have to maintain and repair allotment fences each and every year and the damage each year beyond question is being done by elk." Western Range Services, a consultant for Pine Creek Ranch on the Table Mountain Allotment, also responded with a similar concern indicating that the issue of fence damage was not adequately addressed in the initial monitoring plan.

Annually on the Table Mountain Allotment, as part of the monitoring process, pre-season fence inspections are performed by the Forest Service. Maintenance needs are documented and the cause of damage is determined. Numerous trips to Table Mountain all report either no observed damage or only incidental damage. This certainly does not mean that no damage occurred, only that none was observed although a great deal of time is spent riding the Barley Creek/Table Mountain area.

In 1988 when portable electric fences were first installed in some of the meadow areas on Table Mountain to monitor elk use in these sites, there was definite damage to these fences caused by elk. However, most of the damage occurred fairly early in the season and by the end of the season, the elk were simply jumping the fences. No damage by elk occurred in 1989.

When elk were first introduced they were unfamiliar with fence locations and some damage was expected. As they have become used to the area, this damage has been minimized. Countless times elk have been observed jumping the Table Mountain fences with ease. Calves often have a more difficult time and are the probable culprits to most damage. Should damage by elk repeatedly occur in a specific location, experimental fencing (elk crossings) will be installed to alleviate the problem. Two such crossings or "elk jumpers" have already been installed and additional potential locations have been proposed as cost-share projects with the Rocky Mountain Elk Foundation.

TENTATIVE ALTERNATIVES

Alternative 1. No Action

This alternative will allow the current system of management to continue, allow the same season of use, and allow the same permitted number of livestock. Consideration of the No Action alternative is required under NEPA [40 CFR 1502.14 (d)] and represents the baseline conditions under which the other alternatives are compared (Forest Service Handbook 23.1). No range improvement funds will be spent on an allotment without a management plan approved under the direction of the Toiyabe Land and Resource Management Plan.

Alternative 2. Forest Service Proposed Action

Stocking Level This alternative allows cattle grazing at a reduced level. Grazing capacity information confirmed through three years of utilization surveys indicates a capacity of 130 cattle for four months. This alternative, with its combinations of deferred and rest-rotation systems coupled with some area closures, allows the grazing of 120 cattle for four months.

Management System This alternative provides for management of the Hunts Canyon and Barley Creek units together in a deferred, rest-rotation grazing system used by 90 cattle for four months. In the Hunts Canyon unit, the corridor from Big White Sage Canyon around and through Mud Spring Canyon to the crested wheatgrass seedings in lower Hunts Canyon would be rotated in a deferred, rest-rotation system that allows for early and late season use. All other areas within the Hunts Canyon unit would be closed to grazing.

The Barley Creek unit would be split into two smaller units by constructing gap fencing at key canyon locations: The main fork of Barley Creek and Cottonwood Canyon would be used as one unit, and the Big Meadow and Tipover Basin areas would be used as another unit. Grazing would be closed in Barley Creek Canyon from Big Meadow down-canyon to the confluence of Barley Creek and Cottonwood Creek.

The Willow Creek unit would be managed separately from the Hunts Canyon/Barley Creek system. This unit is used in conjunction with the adjacent BLM Willow Creek unit. 30 cattle would be allowed under a two-year, rest-rotation system.

The Willow Creek unit would be split into two smaller units by fencing between areas of steep topography from the east side of Willow Creek westward to steep slopes on the ridge west of Daugherty Ranch: Lower Willow Creek/Round Knoll below Daugherty Ranch and Willow Creek/House Canyon above Daugherty Ranch. Some additional drift fencing may be needed above Round Knoll. Grazing would be closed in upper Willow Creek above the Willow Creek Administrative Site.

Grazing Rotation in Hunts Canyon and Barley Creek by 90 Cattle

Year	Hunts Canyon	AMs	Barley Ck/ Cottonwood	AMs	Big Meadow/ Tipover Basin	AMs
1	6/10-7/10	90	7/11-10/10	270	REST	
2	REST		6/10-8/10	180	8/11-10/10	180
3	9/11-10/10	90	REST		6/10-9/10	270

Grazing Rotation in Willow Creek by 30 Cattle

Year	Upper Willow Creek	AMs	Lower Willow Creek	AMs
1	6/10-10/10	120	REST	
2	REST		6/10-10/10	120

Range
Development

Many of the existing range improvements constructed within the Monitor Complex Allotment are in need of major repairs or reconstruction. Several new gap or drift fences are required to exclude some canyon areas within each unit and a number of new water developments are needed to improve distribution away from riparian areas.

PROPOSED IMPROVEMENTS

IMPROVEMENT	TYPE	SIZE	EST COST	LOCATION	UNIT
Wattle Spring	W/D Recon	1	2000	T9NR47E Sec 32	Barley Ck.
Coppernaught Spring	W/D Recon	1	2000	T10NR47E Sec 23	Barley Ck.
Switchback Springs	W/D New	1	2000	T10NR47E Sec 13	Barley Ck.
Tipover Basin Spring	W/D New	1	2000	T10NR47 1/2 Sec 25	Barley Ck.
Haystack Mesa Spring	W/D New	1	2000	T10NR47E Sec 17	Barley Ck.
Barley Creek Summit	W/D New	2	4000	T9NR47E Sec 22	Barley Ck.
Round Knoll	Pond New	1	2000	T8NR47 1/2 E Sec 13	Willow Ck.
Barley Ck Gap Fnc	Fence New	1/8	500	T10NR47E Sec 36	Barley Ck.
Barley Ck Gap Fnc	Fence New	1/8	500	T10NR47E Sec 24	Barley Ck.
Barley Summit Gap Fnc	Fence New	1/4	4000	T9NR47E Sec 23	Barley Ck.
Upper Willow Gap Fnc	Fence New	1/2	2000	T10NR48E Sec 16-17	Willow Ck.
Lower Willow Gap Fnc	Fence New	1-1/2	9000	T9NR48E Sec 7	Willow Ck.
Hunts Canyon Gap Fnc	Fence New	1/8	500	T6NR46E Sec 2	Hunts Cyn
Mud Springs Gap Fnc	Fence New	1/2	1000	T6NR46E Sec 9	Hunts Cyn
Hunts Canyon Gap Fnc	Fnc Recon	1/8	500	T7NR46E Sec 35	Hunts Cyn
Little Ctnwd Gap Fnc	Fnc Recon	1/8	500	T7NR46E Sec 25	Hunts Cyn
Discing & Seeding	Seeding	50+	2000	T7NR46E Sec 35	Hunts Cyn
Discing & Seeding	Seeding	150+	6000	T6NR46E Sec 2,3,9	Hunts Cyn
Prescribed Burn	Burn	200+	2000	T10NR47E Sec 12	Barley Ck.
Big Mdw Headcut Structures		2-4	1500	T10NR47E Sec 13	Barley Ck.
Sheep Trough H.C. Structures		1-2	1000	T10NR47E Sec 23	Barley Ck.
Tipover Headcut Structures		1-2	1000	T10NR47 1/2 E Sec 25	Barley Ck.

Willow Ck. H.C. Structures	1-2	1000	T10N48E Sec 20	Willow Ck.
Barley Ck. Fish Structures	?		System-wide	Barley Ck.
Hunts Cyn Fish Structures	?		System-wide	Hunts Cyn
Cottonwood Cyn Fish Structures	?		System-wide	Barley Ck.

Total cost is estimated at \$50,000+. Extensive water developments are necessary to the extent that improving distribution and storing adequate water to make the system reliable are important.

Alternative 3. Remove All Livestock

This alternative will remove all livestock grazing from the allotment. Under this alternative the allotment will only be grazed by wild ungulates and wild horses. All range improvement structures will be removed from the allotment. Estimated cost to remove improvements is \$10,000.

Alternative 4. CRMP:H.C. Riparian/Upland; B.C. & W.C. Season-Long.

This alternative will allow livestock grazing to continue. Under this alternative the Hunts Canyon unit will be divided into two units, a riparian unit and an upland unit. Fencing will be constructed to create the Hunts Canyon riparian pasture. The riparian pasture will be grazed from high water until flowering on the crested wheatgrass. Use on the upland unit will not exceed Forest Plan Standards of 40% use. The other two units will be grazed under a season-long grazing system. Livestock numbers will be reduced to less than 100 cattle total which is the indicated capacity under season-long grazing with use standards of 45% for riparian areas and 40% for upland areas. Wildhorse and elk management will be as described in the proposed alternative. Water developments as identified in the proposed action will be installed, and riparian pasture fencing in Hunts Canyon and a drift fence across Barley Creek Summit will be constructed. Range improvement practices will be implemented to increase vegetative production where cost effective. Headcut structures and fisheries structures will be installed. Estimated costs are \$30,000.

Alternative 5. Combine Barley Creek, Willow Creek, and Table Mountain

This alternative will eliminate grazing in the Hunts Canyon unit and combine the Barley Creek and Willow Creek units with the Table Mountain allotment in a rest-rotation system. Under this alternative the Table Mountain permittee will retain his permitted numbers. The Monitor Complex permittees will have their permitted numbers reduced to the indicated carrying capacity of 120 Cattle for four months (Barley Creek/Big Meadow--90 cattle; Willow Creek--30 cattle). The Willow Creek unit will be used separately as described in the proposed alternative, and the Barley Creek unit will be divided into two pastures which will be used in a three-pasture rest-rotation system with the Dry Lake unit of the Table Mountain Allotment. Any additional grazing which may become available at a later date will be proportionately added to each permittee. Additional areas excluded from grazing in Barley Creek and Willow Creek, as identified in the proposed action, will be fenced. Wildhorses and elk will be managed as indicated in the proposed alternative. The Willow Creek unit will be fenced into two units as described in the proposed action. Water developments and headcut structures will also be installed. Range improvement practices may be implemented to increase vegetative production where cost effective. Costs for improvements will approximate \$40,000.

Alternative 6. H. C. Riparian/Upland Pasture;B.C./W.C Rest-Rotation.

This alternative will create a separate allotment out of the Hunts Canyon unit. Under this alternative the Hunts Canyon unit will consist of a riparian unit and an upland unit. The Barley Creek and Willow Creek units will become a separate allotment managed under a three-pasture rest-rotation grazing system with the creation of the Barley Creek/Cottonwood pasture and the Big Meadow/Tipover Basin pasture in the Barley Creek unit. The Willow Creek unit will not be fenced into two units so that it could be grazed by the total permitted numbers as the third pasture in this system. Permitted numbers would be about 30 cattle in Hunts Canyon, based on season-long use standards and 90 cattle in the other two units. Season of use on the Hunts Canyon unit will be changed. Wildhorses and elk will be managed as described in the proposed alternative. The range improvement schedule will be very similar to that of the proposed action with the exception of the Willow Creek division fence which will not be built. Estimated costs are \$41,000.

COMPARISON OF ALTERNATIVES

ALTERNATIVE COMPARISON CHART

<u>ALTERNATIVE</u>	<u>GRAZING SYSTEM</u>	<u>GRAZING SEASON</u>	<u>NO. CATTLE</u>	<u>IMPROVE. COST</u>
Alt 1 No Action	Rest-Rotation	6/10-10/10	542	\$-0-
Alt 2 Proposed	Rest-Rotation	6/10-10/10	120	\$50,000
Alt 3 Remove Cattle	None	None	None	\$10,000
Alt 4 CRMP Riparian	Riparian/Ssn-Long	5/10-10/10	>100	\$30,000
Alt 5 Table Mt.	Rest-Rotation	6/10-10/10	120	\$40,000
Alt 6 Two Allotments	Riparian/Rest R.	6/10-10/10	120	\$41,000

Alternative 7. Total Ranch Management

This alternative takes into consideration that the Stone Cabin Ranch depends entirely on Federal lands for their ranching operation. In the creation phases of this alternative there were six different variations of this option. This final alternative had the highest merit.

This alternative coordinated grazing management between the BLM's Hunts Canyon Allotment and the Forest Service Monitor Complex Allotment with a system that grazed the area north of Sheep Mountain on the BLM allotment and the Barley Creek and Hunts Canyon units with a total of 375 cattle from 6/1-9/30. The BLM Hunts Canyon Allotment would be grazed season-long and the Barley Creek and Hunts Canyon (FS) units would each be grazed for two years followed by two years rest with varying numbers. Willow Creek would be managed separately with the BLM Willow Creek unit.

Grazing System Winter - South of Sheep Mountain 10/1-5/30 with 375 cattle

Summer - North of Sheep Mountain, Barley Creek, Hunts Canyon 6/1-9/30 with 375 cattle

Barley Creek - year 1 and 2 Rest; year 3 and 4 graze with 44 cattle from 6/10-9/10

Hunts Canyon - year 1 and 2 graze with 83 cattle from 6/10-9/10; year 3 and 4 Rest
Willow Creek - Close to grazing above proposed drift fence; or graze above drift fence with 20 cattle every other year; grazing below drift fence would be allocated as drift from the 85 cattle permitted on the BLM Willow Creek unit.

This alternative may not be viable because:

1. It was not a desirable option for Stone Cabin Ranch.
2. The BLM had not completed adequate evaluations of the BLM Hunts Canyon Allotment and they recommended that it was best not to consider the BLM allotments in any management system until they have been adequately evaluated.

Alternative 8. Increase Capacity on the BLM.

Opportunities for conversion of sagebrush to productive grasslands are very limited on National Forest System lands within the Monitor Complex. This alternative suggests a coordinated revegetation project consisting of approximately 1000 acres within the BLM Hunts Canyon Allotment in the vicinity of Elkhorn and Wattles Creek. If additional capacity were created on adjacent BLM lands, pressure could be relieved on areas within the Monitor Complex.

This alternative may not be a viable option because:

1. The permittees have expressed that they are not interested in cooperative participation in seeding projects. Roy Clifford indicated in 1987 that seeding of the flats had been discussed before and he didn't want anything to do with it. He said that by the Forest Service providing the seed and the permittee doing the seeding, they would be doing a lot of work just to benefit the Forest Service. He said that they were paying for the forage as it is.
2. This alternative would cost more than the value the Forest Service would realize through the proposed project. Estimated cost of the seeding project are \$70,000. If 500 pounds per acre of additional forage were produced, only approximately 200 AMs additional use would be realized.

Alternative 9. Use of Stone Cabin and Saulsbury Allotments.

The possibility of using the Stone Cabin and Saulsbury winter allotments early in the season with the entire herd of cattle was discussed briefly.

This alternative is not a viable option because these units lack available water sources and capacities are marginal.

ENVIRONMENTAL CONSEQUENCES

Evaluation and Comparison of the Alternatives.

EACH ELEMENT OF THE ENVIRONMENT LISTED HERE MUST BE EVALUATED FOR EFFECTS AGAINST EACH MANAGEMENT ALTERNATIVE CONSIDERED.

Soil Resources

How Range Management Affects Soil Resources

A vigorous grass range owes its existence to the soil stability, fertility, and reasonably favorable soil moisture conditions maintained by the grass cover. Where ranges are heavily stocked with livestock, changes in vegetation take place. Livestock trample and compact the soil, and the high-quality, fibrillar-rooted plants gradually give way to shallow rooted annual species or tap-rooted forbs or shrubs that can exist on areas with lowered water tables. As soil is compacted, infiltration of water into deep soils is lessened and surface runoff is increased. The accelerated rate of erosion has major effects on terrestrial and aquatic productivity. Rich topsoil is lost by the erosive action of wind and water, and the quality of streams receiving the eroded material is reduced. Streambanks erode because livestock congregate along streams for shade, more succulent vegetation, and drinking water.

When controlled, grazing animals can have positive influences on the soil resource:

1. Loosening of the soil surface during dry periods.
2. Incorporating mulch into the soil profile, which speeds development of humus.
3. Recycling nutrients and making some nutrients more available.

Significance Criteria

The selected action would be considered significant if it:

1. Results in continued loss of meadows due to down-cutting and lowering of the water table.
2. Would not maintain and achieve at least 80% of the natural bank stability for trout streams.

The Effects

Need For Mitigation

1. Headcutting in meadows will be eliminated through management of livestock and/or installation of head-cut structures.
2. Mechanical treatment projects, where practical, will be designed to retain existing grass plants as a seed source.
3. No new ingress or egress roads will be allowed.
4. All improvement work will be carried out during weather conditions which allow the least detriment to all resources involved.

Air Quality

How Range Management Affects Air Quality Through photosynthesis, range vegetation is capable of disposing of some atmospheric pollutants and helps replenish the atmosphere's oxygen supply. Overgrazing and denuding of vegetation, however, can be the cause of polluted air and silt-laden streams.

Range management generally affects air quality, temporarily, through the types of range improvement projects that are implemented, such as prescribed burning and scarification of rangelands for reseeding.

Significance Criteria The selected action would be considered significant if it:
1. Results in management activities that would not comply with an approved state air quality implementation plan.

The Effects

- Need For Mitigation
1. All prescribed burning projects will have site-specific analyses and Prescribed Fire Plans prepared before projects are implemented.
 2. All management activities will comply with the state approved air quality implementation plan.

Water Resources

How Range Management Affects Water Resources Reductions in water quality result from sediment generated on overgrazed areas. Sediment reduces the amount of dissolved oxygen in the water and raises the water temperature. Fish need high-quality water because this is their living medium. Water cannot be too warm or too cold, too fertile or too infertile, too fast or too slow, or too high or too low in dissolved gases. Fish forced to remain in turbid waters may have trouble feeding, using oxygen, and reproducing.

Grazing may damage water quality by affecting the hydrologic conditions within a given watershed. Livestock grazing contributes to the coli count in streams. Bacteria, along with sediment or chemicals, will degrade water quality. Photosynthesis is decreased by stream turbidity, and primary productivity is reduced. With primary productivity reduced, productivity of the entire ecosystem is decreased.

Flooding is another serious and indirect consequence of overgrazing on rangelands. Compacted soils with little vegetative cover or mulch have greatly reduced infiltration rates. Water moves over instead of into the soils. In

contrast, soils with a good protective cover usually have high infiltration rates. Water percolates through these soils to the water table. This results in a uniform release of groundwater into streams, which is important in maintaining the flow of many creeks during summer dry periods. Water that enters streams from the earth usually is of excellent quality to sustain fish.

Significance Criteria

The selected action would be considered significant if it:

1. Would not maintain or improve habitat for viable populations of all existing vertebrate wildlife species - minimizes grazing on key wildlife habitat (fawning/calving areas, winter range, riparian areas, migration corridors); maintains meadows in sage grouse range in high ecological status; manages riparian areas to achieve or maintain a medium or high ecological status.
2. Would not achieve at least 80% of the natural bank stability for trout streams.
3. Would not maintain or improve the Biotic Condition Index to a minimum standard of 85 BCI.
4. Results in continued loss of meadows due to down-cutting and lowering of the water table.

The Effects

Need For Mitigation

1. Water needed for National Forest System management, but not available under state law and not meeting the Supreme Court criteria for a reserved right under the Organic Administration Act, will be secured by citing the applicable federal law and conditioning occupancy permits.
2. Drinking troughs will contain escape ramps for small avian and wildlife species.

Range Vegetation

How Range Management Affects Range Vegetation

The direct influence of grazing on vegetation is the destruction of plant tissue, particularly photosynthetic tissue. In order that the plant may continue to function in the normal manner, it is necessary that this tissue be replaced. Physiologically, most range plants are capable of replacing this tissue provided that reserve food materials are available or that sufficient photosynthetic tissue remains for the manufacture of carbohydrates. It is well known that, under certain conditions, pruning stimulates the growth of trees. Clipping and mowing experiments have shown that the same thing is true under grazing. Grasses subjected to light harvesting at frequent intervals will produce more vegetative material than those harvested after maturity. However, it has also been shown that beyond a certain point the production of tissue decreases with the intensity and frequency of grazing. Under conditions of frequent, intensive grazing, the plant tissue is removed

more rapidly than it can be replaced, so that if the process is continued for very long, damage to the plant is inevitable. Intensive clipping or grazing produces an accumulative effect, and the ability of the plant to recover from the loss of tissue is somewhat inversely proportional to the amount of herbage removed.

Grass species vary greatly in palatability, and cattle tend to select and graze the preferred species closely. When these plants lose vigor and die, a direct replacement by an inferior species takes place. The replacement plants are usually of lower forage value and always of lower successional rank. A second type of retrogression is the replacement in whole or in part of a plant community by another more xerophytic community. This replacement is brought about by the decrease in moisture efficiency on range land due to the effects of grazing.

When controlled, grazing animals can have positive influences on the vegetative resource:

1. Removal of excessive vegetation that may negatively affect net carbohydrate fixation and increase water transpiration losses.
2. Maintaining an optimal leaf area index of plant tissue.
3. Trampling seed into the ground.
4. Reducing excessive accumulations of standing dead vegetation and mulch that may chemically and physically inhibit new growth.

Significance Criteria

The selected action would be considered significant if it:

1. Would not bring all rangelands to satisfactory condition or better.
2. Would not implement a non-continuous management system.
3. Would not complete livestock adjustments needed to obtain an acceptable balance between available livestock forage and livestock numbers and season of use.
4. Would not include specific forage utilization standards, in compliance with Forest Plan prescriptions, in the livestock management system.

The Effects

Need For Mitigation

1. Forage utilization standards and guides as prescribed in the Toiyabe Forest Plan will be implemented.
2. Livestock adjustments, as indicated by current Grazing Impact and utilization surveys, will be made.
3. A rest-rotation grazing system will be implemented.
4. Two years' rest will be provided for all revegetation projects.

Riparian Areas

How Range Management Affects Riparian Areas

Livestock grazing can affect the riparian environment by changing, reducing, or eliminating vegetation and by actual elimination of riparian areas by channel widening, channel aggradation, or lowering of the water table.

Livestock grazing can affect all four components of the aquatic system--streamside vegetation, stream-channel morphology, shape and quality of the water column, and the structure of the soil portion of the stream bank. Livestock can affect the streamside environment by changing, reducing, or eliminating vegetation bordering the stream. Channel morphology can be changed by sediment accrual, altered channel substrate composition, disrupted pool-riffle relationships, and channel widening. The water column can be altered by increasing water temperature, nutrients, suspended sediment, and bacterial counts, and by altering the timing and volume of water flow. Livestock can trample streambanks, causing banks to slough off, creating false setback banks, and exposing banks to accelerated soil erosion.

Significance Criteria

The selected action would be considered significant if it:

1. Would not manage riparian areas to achieve or maintain a medium or high ecological status.
2. Results in continued loss of meadows due to downcutting and lowering of the water table.

The Effects

Need For Mitigation

1. Any necessary stream alteration will be carried out in accordance with prescribed specifications listed in the Forest Plan.
2. New livestock water developments will be located outside riparian areas.
3. Salt grounds will be located outside riparian areas.
4. Use fencing to protect riparian areas only when no other alternative exists.
5. Manage beaver to maintain or enhance riparian communities.

Wilderness Resource

How Range Management Affects Wilderness Resources

The Table Mountain Wilderness must be managed in a manner that will maintain its wilderness character. Management practices that tend to concentrate uses, causing soil disturbance, are not compatible with wilderness. Current use by livestock over some portions of the Barley Creek unit

is resulting in unsatisfactory conditions that are not compatible with wilderness values.

Many wilderness users object to the presence of cattle within wildernesses. Objections are usually directed to dusty trails, use of the native forage, droppings, conflicts on trail use, and the interruption of solitude by animal sounds. This however, is not always the case as many people do not object to grazing animals as long as they are properly managed and compatible with wilderness values.

Construction of range improvements may be objectionable to wilderness users by impacts to visual quality and temporary noise pollution during construction, affecting serenity.

Significance
Criteria

The selected action would be considered significant if it:

1. Results in management activities that are not compatible with the wilderness concept.
2. Results in visual management practices that do not achieve "Retention" objectives (Where management practices are not evident to the casual observer) within the Table Mountain Wilderness.

The Effects

Need For
Mitigation

1. New structural range improvements within the Table Mountain Wilderness will be designed for maximum compatibility.
2. Any use or activity that is in conflict with or detracts from the wilderness character of the land or the stability of the soil resource must be rigidly controlled.
3. There shall be no curtailments of grazing in wilderness areas simply because an area has been designated as wilderness. Any adjustments in numbers of livestock permitted to graze in wilderness areas should be made as a result of revisions in the normal grazing and land management planning and policy-setting process.

Wildlife and Fish

How Range
Management Affects
Wildlife And Fish

Livestock grazing off the vegetative cover and caving in overhanging streambanks is one of the principal factors contributing to the decline of fisheries. Streams that are modified by livestock grazing are wider and shallower. Generally, they have channels that contain more fine sediment, streambanks that are more unstable, banks that are less undercut, and higher summer water temperatures than natural streams.

Light to moderate grazing by livestock may promote habitat diversity, increase production of certain forage, or open areas for easier access by wildlife.

When cattle and elk simultaneously graze the same rangeland, they may utilize different vegetation types and topographic positions. Dietary overlap between cattle and elk can range from 30 to 50% for sedges, fescue, and bluegrass. Use of a rangeland by elk is only moderately affected by distance to water. Use of a rangeland by cattle is restricted by availability of water.

Cattle and mule deer do not compete for forage under proper stocking conditions, because cattle are primarily grass eaters and mule deer are browsers. Cattle and deer compete on over-grazed ranges, because cattle then utilize more browse species. There can be up to a 35% dietary overlap. Use of rangeland by deer is not limited by distance to water. Deer and cattle grazing the same range may utilize different vegetation types and topographic positions.

Ground-nesting birds are probably more seriously affected by over-grazing than any other group of wildlife, because a lack of vegetative cover results in high predation losses. However, most of these birds depend on annual grasses and forbs, associated with the early stages of range succession, for food.

Significance Criteria

The selected action would be considered significant if it:

1. Would not maintain or improve habitat for viable populations of all existing vertebrate wildlife species - minimizes grazing on key wildlife habitat (fawning/calving areas, winter range, riparian areas, migration corridors); maintains meadows in sage grouse range in high ecological status; manages riparian areas to achieve or maintain a medium or high ecological status.
2. Would not achieve at least 80% of the natural bank stability for trout streams.
3. Would not maintain or improve the Biotic Condition Index to a minimum standard of 85 BCI.

The Effects

Need For Mitigation

1. Canyon gap fences constructed across wildlife migration routes will be constructed to allow ease of wildlife passage.
2. Vegetation manipulation projects in sagegrouse habitat will comply with standards prescribed in the Forest Plan.

Wildfire and Prescribed Burning

How Range Management Affects Wildfire And Prescribed Burning Management activities either change the vegetation type or reduce the fuel volume within a vegetation type by the following:

1. Reducing the total amount of material to burn.
2. Reducing flammability of the fuels.

Prescribed fire can be a useful tool in many sagebrush communities if the fires are carefully planned and livestock do not graze the burn for two growing seasons. Removal of sagebrush will release grasses and forbs from competition, resulting in increased yields. Areas dominated by Big Sagebrush frequently contain cheatgrass in the understory. Cheatgrass will rapidly invade those areas formerly occupied by the sagebrush unless substantial perennial herbaceous cover is present on the site. Rabbitbrush, a common genera in the sagebrush-grass type, is usually enhanced by fire.

Significance Criteria

The selected action would be considered significant if it:

1. Would not permit, subject to reasonable regulations, the grazing of livestock and activities and the necessary facilities to support a livestock program.

The Effects

Need For Mitigation

1. All prescribed burning projects will have site-specific analyses and Prescribed Fire Plans prepared before projects are implemented.
2. All prescribed burns will be rested from livestock grazing for two years following treatment.

Visual Resources

How Range Management Affects Visual Resources

Lands within the allotment are especially popular to the traveling and sightseeing public during the summer and fall seasons when the oasis environment of the streamside areas and fall colors of aspen at higher elevations appeal to visitors. Range management affects visual quality primarily through the removal of vegetation by livestock, soil disturbance, and range improvement structures. Overgrazing and insensitive design of range improvements can sometimes seriously detract from the beauty and open space character of the environment.

Wildhorses and wildlife have unquantifiable esthetic values to the sightseeing public.

Significance Criteria

The selected action would be considered significant if it:

1. Results in visual management practices that do not achieve "Retention" objectives (Where management practices are not evident to the casual observer) within the Table

Mountain Wilderness and "Partial Retention" (Where management practices are visually subordinate) on all other lands on the Monitor Mountain Range.

The Effects

Need For Mitigation

1. All new range improvements will be designed to achieve visual quality objectives.

Recreation

How Range Management Affects Recreation

One of the most impressive aspects of the Nevada outdoor recreational picture is its strong orientation to the water resource. Water is a demonstrably finite resource. Uses are in conflict when they compete for this resource. Overgrazing by livestock introduces stream sediments and pollutants, threatening the survival of the existing sport fishery in some important fishing areas such as Barley Creek, Cottonwood Creek, and Hunts Creek. The relevance of this issue to outdoor recreation is highlighted by the ranking of fishing as a favorite activity in five out of six Planning Regions in the Nevada Statewide Comprehensive Outdoor Recreation Plan.

Just the presence of livestock in a highly used recreational area may be objectionable to some recreationists. Presence of cow dung is unacceptable to many. Vegetation in meadows and riparian areas is closely utilized under any stocking rate or system. Many believe that the only way to protect recreational values is to fence these areas off from grazing.

Range management affects recreational hunting through provisions for maintenance of key wildlife habitats. The "supply" of hunting opportunities is best measured in terms of game availability.

Hiking and horseback riding is a primary recreation activity on the Barley Creek Trail where cattle grazing is confined within the narrow canyon corridor. Recreationists are constantly pushing cattle to and fro along the canyon route.

Significance Criteria

- The selected action would be considered significant if it:
1. Would not maintain or improve habitat for viable populations of all existing vertebrate wildlife species.
 2. Would not manage riparian areas to achieve or maintain a medium or high ecological status.

The Effects

Need For
Mitigation

1. Canyon gap fences will be designed to provide suitable trail access for recreationists.
2. Cattle will be excluded from the lower, narrow portion of Barley Creek Canyon to alleviate livestock/recreationist conflicts.

Social and Economic Effects

How Range
Management Affects
Social And
Economic Factors

Range management and livestock grazing on public lands are considered synonymous by the majority of the public. This is a misconception. Range management is the art and science of managing the whole complex of rangelands for multiple benefits. Today's demands on range resources, including vegetation, go beyond just livestock grazing to encompass many multiple uses that are produced from rangelands. The realization of this philosophy has both cultural and social significance to all users of National Forest Systems lands.

The social and political environment within which the Forest Service operates has changed significantly in only the past 20 years. Not too long ago, the only people who cared enough about rangelands to work either with or against the Forest Service were the livestock industry. Now, many other interest groups, individuals, and politicians are taking an active interest. These interests are socially and politically important.

As the Forest Service broadens the range resource goals beyond red meat production to include other multiple uses, at least two factors have social and economic effects: 1) Livestock can and should be used as a tool to manage vegetation, and 2) Livestock grazing must be in balance with the available resource and be cost effective.

Incomes in Nye County far exceed those in Eureka and Lander Counties with ranching income being the most divergent. It is estimated that only 2.6 percent of the people employed here depend on outputs from National Forest System lands. The income earned by them is only 1.5 percent of the total income. The local and regional area is ranching oriented, however elimination of grazing on the Monitor Complex Allotment would not have a significant impact on the local or regional economy. Serious concern and considerable political interest and involvement would be generated. Four forest land products are quite important in the area; minerals, forage, recreation, and water. Significant user groups can be identified for each of these products. Miners are extremely independent and vocal. Ranchers are long-time land owners or corporation employees. Recreationists are both residents and outsiders and increasing in number in the area. Water users are everyone, with ranchers and

recreationists having direct substantive interest in water resources.

Recreation use on limited areas of the Monitor Complex Allotment is increasing rapidly. Barley Creek provides a major recreational environment and is also a major "gateway" to the Table Mountain Wilderness. Social values associated with leisure time and relative affluence will become increasingly important in this area.

The livestock industry in Nevada depends heavily upon public lands. National Forest System lands furnish seasonal grazing for approximately 36% of the cattle in the state. While the Western States do not dominate the Nation's livestock industry, the relationship between the western livestock industry and the availability of public range is important both regionally and locally. The availability of public rangelands helps promote the stability of family ranches. The availability of public range forage contributes to the livelihood of full-time operators who are substantially dependent on it for livestock forage. On most Central Nevada ranches, livestock ranching operations continue in their traditional role of providing the primary economic base. Rangeland management affects livestock operations socially and economically as changes in permitted cattle numbers are implemented and as changes in traditional management concepts are made, each affecting alterations in livelihood and a "way of life".

Significance
Criteria

The selected action would be considered significant if it:

1. Would not encourage allocation of the range resource on National Forest System lands.
2. Would not permit, subject to reasonable regulations, the grazing of livestock and activities and the necessary facilities to support a livestock program.
3. Would not involve livestock permittees, other federal and state agencies, and interested parties (CRMP process) in the development of allotment management plans.

The Effects

Need For
Mitigation

1. Livestock permittees, other federal and state agencies, and interested parties will be involved in the development of allotment management plans. The Coordinated Resource Management and Planning Process (CRMP) will be used as appropriate.

Wildhorses

How Range Management Affects Wildhorses

Wildhorses and cattle occupy the same areas and have similar forage preferences. Overgrazing by cattle will have negative impacts on wildhorses. Wildhorse needs are centered around open space and other habitat needs; specifically food and water. Allotment division and drift fences may impact wildhorse movement. Construction of additional water developments will be beneficial to wildhorses. Wildhorse needs are presently being met within the Monitor Complex Allotment.

Significance Criteria

The selected action would be considered significant if it:
1. Would not include an acceptable method to regulate wildhorse numbers at levels compatible with environmental constraints while maintaining the populations at viable levels.

The Effects

Need For Mitigation

1. Wildhorses will be managed according to the approved South Monitor Wildhorse Territory Management Plan, which includes continued monitoring of the herd to assure that management is responsive to problems as they arise.
2. As the Monitor Complex AMP is implemented, provisions for wildhorse needs will be made (water will be available at all troughs, gates not needed for livestock control or resource protection will be left open).
3. If wildhorse trailing and subsequent compaction deteriorates trails causing watershed or erosion problems, corrective measures will be taken.

Cultural Resources

How Range Management Affects Cultural Resources

Range management affects cultural resources primarily through the implementation of a selected range improvement program. The use of mechanical equipment creates certain soil disturbances that could damage historical or archeological ruins and artifacts.

Significance Criteria

The selected action would be considered significant if it:
1. Would not require identification and protection of archeologic and historic values.

The Effects

Need For
Mitigation

1. Structural and nonstructural improvements involving on-the-ground disturbance will be inventoried by a certified cultural resource technician before construction begins. If the inventory reveals significance of site potential, then construction will not be done until clearance of the area is given by the Forest Archeologist.

T & E Plants

How Range
Management Affects
T & E Plants

There are a number of sensitive plants found on the Monitor Complex Allotment. The effect of livestock grazing of sensitive plants could be eradication of the species grazed. Generally, the effects of grazing are the same as those described under Range Vegetation. As uses of the land increase, the risk of further habitat loss will, undoubtedly, increase. Construction of range improvements could destroy sensitive plants through soil disturbing activities.

Significance
Criteria

The selected action would be considered significant if it:
1. Would not comply with provisions of the Endangered Species Act.

The Effects

Need For
Mitigation

1. Inventories will be conducted by certified personnel, wherever project work is planned. If T & E plants are found appropriate action will be taken to ensure their preservation.

Uncertainty

1. Soil disturbance in treatment areas, coupled with the chance of failure in re-establishing adequate vegetative cover, represents a risk to the watershed conditions in the immediate areas of the projects.
2. The Table Mountain Allotment has a working rest-rotation system. Implementation of Alternative 5 would require alterations in this system. There is a risk that any change could upset the system enough to produce negative impacts to the resources as well as to livestock management.
3. The extent of elk impacts on winter range in the Hunts Canyon area has not been refined by established studies.
4. Utilization surveys measured total utilization by all ungulates. Use by wildlife and wildhorses was not distinguished.
5. Much of the allotment is in poor and very poor condition. The process of bringing this range back to satisfactory condition will be a long process and has a degree of uncertainty to it.