

United States
Department of
Agriculture

Forest
Service

Toiyabe National Forest
Tonopah Ranger District
P.O. Box 3940, Tonopah, NV 89049

5/13/91 m
Reply to: 2210
Monitor Complex

Date: May 13, 1991

Dawn Lappin
Wild Horse Organized Assistance
15640 Sylvester Rd.
Reno, Nevada 89511

Dear Mrs. Lappin:

This information is provided to you because of your interest in management of the various resources on the Toiyabe National Forest. Your review of this material is greatly appreciated.

The Tonopah Ranger District, Toiyabe National Forest is in the process of completing an Environmental Assessment (EA) for managing the Monitor Complex C&H Grazing Allotment. The area involved is situated on the Monitor mountain range with a small portion within the Table Mountain Wilderness. This grazing allotment, approximately 120,000 acres in size, is primarily located northeast of Tonopah from Hunts Canyon north to Table Mountain.

Currently this allotment is managed under an allotment management plan developed and implemented in 1981 and later revised under an "interim" allotment management plan in 1986. In 1986 the Toiyabe National Forest Land and Resource Management Plan (Forest Plan) was completed. As a result of the implementation of the Forest Plan, all grazing allotment management plans must be updated to bring them into compliance with the Forest Plan.

Utilization surveys were started on the Monitor Complex C&H Allotment in 1986. They continued through 1989 to verify an appropriate grazing capacity. Over the past couple of years, there has been a great deal of study and discussion. This has involved federal, state, and local governments as well as development of a Coordinated Resources Management and Planning (CRMP) group. As a result of this work, major issues have been identified and several grazing management alternatives have been evaluated, including the proposed management system.

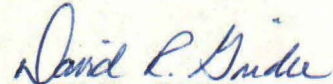
We would like you to review the attached document. Before this Environmental Assessment is finalized and a Decision Memo is prepared, we need to know (1) if the issues listed are adequately addressed, (2) if there are significant issues that have not been identified, and (3) are there opportunities for improved

management that have not evaluated. To be of the most help to us, we would like to receive any comments on these questions by June 15, 1991.

Upon completion of the Environmental Assessment a Decision Memo describing the District Ranger's review and selection of the alternative to be implemented will be prepared. After issuance of the Decision Memo a new Allotment Management Plan will be prepared incorporating the selected management alternative.

Should you have any questions, please feel free to contact me or my Resource Staff Officer Waive Stager at P.O. Box 3940, Tonopah, NV 89049 or by phone at 702-482-6286.

Sincerely,



DAVID R. GRIDER
District Ranger

Attachment

Environmental Assessment
For The
Allotment Management Plan Implementation

Monitor Complex C&H Allotment
Tonopah Ranger District
Toiyabe National Forest
Nye County, Nevada

Type of Action:	Administrative
Lead Agency:	USDA Forest Service
Responsible Official:	For Further Information Contact:
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ABSTRACT

This Environmental Analysis (EA) analyzes a proposal to implement a revised system of cattle management on the Monitor Complex C&H Allotment. The proposal includes adjusting permitted cattle numbers from 542 downward to 130 and revising the current three-pasture rest-rotation grazing management system.

Six alternatives are analyzed: 1) No Action, 2) Proposed Action - 3 Pasture Rest-Rotation, 3) Remove All Livestock, 4) CRMP Proposal: Hunts Canyon Riparian/Upland System and Barley Creek-Willow Creek Season-long System, 5) Combine Barley Creek, Willow Creek, and The Dry Lake Unit Of The Table Mountain Allotment--Exclude Hunts Canyon, and 6) Hunts Canyon Riparian/Upland System and Barley Creek-Willow Creek Rest-Rotation System. The Proposed Action is recommended as the preferred alternative. Environmental resources expected to be most adversely impacted are wilderness and visual resources. Environmental resources expected to benefit the most are water resources, range vegetation, and riparian areas.

Comments on this Environmental Assessment must be received by the District Ranger, Tonopah Ranger District, P.O. Box 3940, Tonopah, Nevada 89049 by June 15, 1991.

Reviewers should provide the Forest Service with their comments by the date specified to enable the Forest Service to analyze and ensure that substantive comments and objections are meaningfully considered for incorporation in final preparation of the Environmental Assessment. Comments should be specific and address the adequacy of the analysis or merits of the issues presented and environmental effects of the alternatives.

SUMMARY

SUMMARY
OF THE
MONITOR COMPLEX C&H ALLOTMENT
MANAGEMENT PLAN

ENVIRONMENTAL ASSESSMENT

A. PURPOSE OF AND NEED FOR ACTION

In summary, the following conditions indicate a need for action on the Monitor Complex C&H Allotment:

1. The rest-rotation grazing system currently being practiced fails to provide for the physiological requirements of forage plants.
2. Studies indicate that vegetation and soil damage currently in progress cannot be alleviated under current stocking and management practices. The alternative of no change in grazing use is not acceptable if unsatisfactory range and watershed conditions are to be corrected.
3. Management and use of this allotment are complicated by two major factors which indicate a need for action:
 - a. Suitable primary range is confined to stream-side zones or canyon floors which confines and concentrates use and limits distribution.
 - b. The three management units making up the Monitor Complex vary in size and capacity, making each unit incompatible with the others in a simple rest-rotation system.

The Tonopah Ranger District of the Toiyabe National Forest plans to bring livestock grazing levels on the Monitor Complex cattle grazing allotment in line with the current indicated grazing capacity on those portions of the range that are capable of sustaining such use.

The project proposal consists of revising the current three-pasture rest-rotation management system and adjusting current permitted numbers of 542 cattle downward to 130 which is the estimated capacity of the suitable range under the proposed system

B. 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 it's impacts on fisheries habitat.

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.

C. ALTERNATIVES

Six alternatives, including the Proposed Action, are analyzed. The alternatives are:

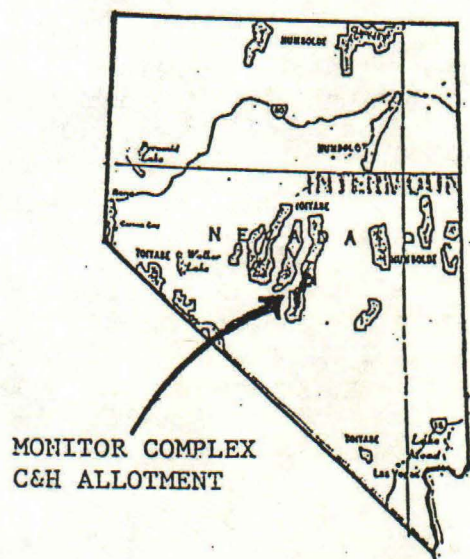
1. No Action
2. Proposed Action - 3 Pasture Rest-Rotation
3. Remove All Livestock
4. CRMP Proposal: Hunts Canyon Riparian/Upland System and Barley Creek-Willow Creek Season-long System
5. Combine Barley Creek, Willow Creek, and The Dry Lake Unit Of The Table Mountain Allotment--Exclude Hunts Canyon
6. Hunts Canyon Riparian/Upland System and Barley Creek-Willow Creek Rest-Rotation System

SUMMARY OF AVERAGE EXPECTED BENEFITS TO RESOURCES

Alt.	Resource Value Rating	Has Sig. Adverse Env. Effects	Does Not Comply With Forest Plan
1	Moderately Adverse Effect	X	X
2	Moderate Benefit		
3	Significant Benefit		
4	Minor Benefit	X	X
5	Moderate Benefit	X	
6	Moderate Benefit		

D. AFFECTED ENVIRONMENT

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 2168 animal months.



The Monitor Complex allotment is located approximately 50 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.

E. ENVIRONMENTAL CONSEQUENCES

Alternative 1 (No Action) has the most adverse environmental impact. This alternative emphasizes livestock grazing over environmental resource concerns.

Alternative 3 (Remove All Livestock) has the most favorable environmental impact. This alternative emphasizes basic soil, water, and vegetation values over livestock grazing.

Alternatives 2 and 5 (Proposed Action and Combine Barley Creek, Willow Creek, and The Dry Lake Unit of the Table Mountain Allotment, respectively) were found to be similar in the kind and intensity of environmental benefits created. Alternative 5 is distinctive when analyzed for recreational and wildlife impacts. The additional cattle numbers and a decrease in the amount of rest provided in the Table Mountain C&H Allotment Dry Lake unit could have negative effects on elk calving, seasonal use patterns, and potential allocation of available forage to increased elk numbers. 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.

Alternative 4 (CRMP Proposal-Hunts Canyon Riparian/Upland System and Barley Creek-Willow Creek Season-Long System) is inconsistent with the Toiyabe National Forest Land and Resource Management Plan (Forest Plan) direction to implement non-continuous management systems on allotments in unsatisfactory range condition.

Alternative 6 (Hunts Canyon Riparian/Upland System and Barley Creek-Willow Creek Rest-Rotation System) creates separate allotments with the Hunts Canyon Allotment consisting of a riparian unit and an upland unit, and the Barley Creek-Willow Creek Allotment being managed under a three-pasture rest-rotation system. This alternative provides moderate environmental benefits but is inferior to alternatives 2 and 5.

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CHAPTER I

PURPOSE AND NEED

1.1 PURPOSE

The purpose of this Environmental Analysis (EA) is to describe the environmental effects of a proposal to revise the Allotment Management Plan for the Monitor Complex Allotment on the Tonopah Ranger District within the Monitor mountain range in Nye County, Nevada.

This proposed action is consistent with the overall management direction provided within the Land and Resource Management Plan (Forest Plan) for the Toiyabe National Forest. The Forest Plan is on file in the Forest Supervisor's Office in Sparks, Nevada. The proposed action meets the Forest Plan Goals of (1) bringing rangelands to satisfactory condition or better, (2) implementing approved management plans on all grazing allotments, (3) managing wildernesses to protect their wilderness values, (4) improving riparian areas to satisfactory conditions, and (5) enhancing and managing fish and game habitat with emphasis on improving overall quality of wildlife habitat. These goals are listed in the Forest Plan in Chapter IV, pages 4,5,6, and 7.

Management requirements necessary for achieving goals and objectives are referred to as "Standards and Guidelines". These state the bounds or constraints within which management practices will be performed. Forest-wide Standards and Guidelines for Range Management wherein standards for (1) implementation of non-continuous use management systems on all livestock grazing allotments and (2) forage utilization are prescribed in the Forest Plan in Chapter IV, pages 26-29. Management Area direction and activities and specific Standards and Guidelines that apply to the Monitor mountain range are listed in the Forest Plan in Chapter IV, pages 134-141.

The Forest Plan for the Toiyabe National Forest is being implemented as required by the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA, P.L. 93-378) and the National Forest Management Act of 1976 (NFMA, P.L. 94-588). The Toiyabe National Forest is required to undertake actions such as revisions in livestock management in order to implement the Forest Plan. All permits, contracts, and other instruments for occupancy and use of the Toiyabe National Forest must be consistent with management requirements in both the Forest and Management Area direction sections. This is required by 16 USC 1604(i) and 36 CFR 219.10(e).

The Forest Plan describes a set of goals and activities for Range Management on the Toiyabe National Forest. Actions necessary to achieve these goals and activities, such as the proposed action are authorized by the Forest Plan. These goals and activities were established by considering issues, concerns, and opportunities for management of the Toiyabe National Forest, and by performing an environmental analysis of these goals and activities. The environmental analysis of these goals and activities is documented in the Final Environmental Impact Statement (FEIS) for the Forest Plan.

This Environmental Assessment is not a decision document: it does not describe the decision to be made by the Forest Supervisor with regard to this proposed project. This Environmental Assessment discloses the environmental

consequences of implementing the proposed action and alternatives to that action. The Forest Supervisor's decision is stated and explained in the Decision Notice accompanying this Environmental Assessment.

This Environmental Assessment is concerned only with the impacts associated with the proposed action on the Toiyabe National Forest. However, impacts which may occur on lands adjacent to the National Forest, and impacts which may occur in surrounding communities as a result of the proposed project are described in this document. Through consultation, other Federal, state and local jurisdictions have assisted in the disclosure of environmental consequences and development of alternatives to the proposed action.

The environmental analysis documented in this Environmental Assessment is tiered to the Forest Plan and FEIS approved on June 23, 1986.

1.2 THE PROPOSED ACTION

The Tonopah Ranger District of the Toiyabe National Forest plans to bring livestock grazing levels on the Monitor Complex cattle grazing allotment in line with the current indicated grazing capacity on those portions of the range that are capable of sustaining such use.

The project proposal consists of providing for management of the Hunts Canyon, Barley Creek, and Willow Creek units under a three pasture rest-rotation grazing system. Each unit would be grazed for two seasons and rested for one.

The proposal includes the following:

1. Adjust current permitted numbers of 542 cattle downward to 130 which is the estimated capacity of the suitable range under the proposed system.
2. Continue present permitted season of use from 6/10 to 10/10. The years when Hunts Canyon is grazed, the season will start on 5/15 and end on 9/15 in all grazed units.
3. Establish an intensive rest-rotation grazing system which provides complete rest at intervals no greater than one year out of three.
4. In the Hunts Canyon unit, fencing would be used to exclude livestock from the stream bottoms for protection and improvement of riparian resources.
5. Close to grazing that portion of Barley Creek Canyon from the confluence of Barley and Cottonwood Creeks to Big Meadow.
6. In cooperation with the permittees, develop to the fullest extent possible the additional waters needed to implement the management system.
7. Rehabilitation of the range by plant control, seeding, and other cultural practices has limited application on selected areas after proper stocking and management are in operation.
8. Examine the range each season to determine effectiveness of management and make such program adjustments as may become necessary to accomplish management objectives.

1.3 BACKGROUND AND PROJECT DESCRIPTION

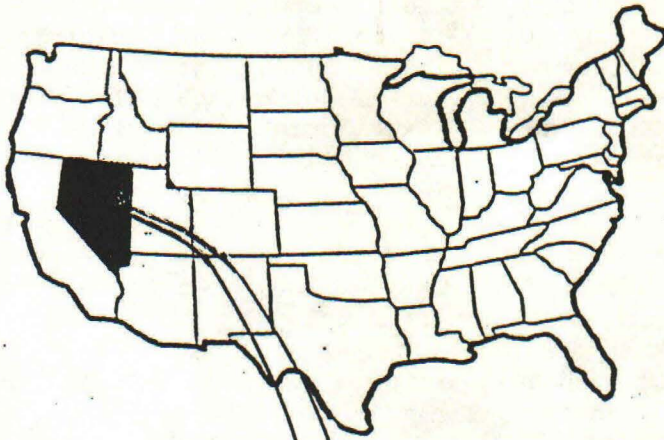
The Monitor Complex Allotment on the Toiyabe National Forest occurs on the Tonopah Ranger District. The current permittee, Stone Cabin Partnership, is a family business owned by the Clifford Family which includes brothers Roy Clifford and Joe Clifford Jr. and a sister Margaurite Boscovitch. The family 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 2168 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.

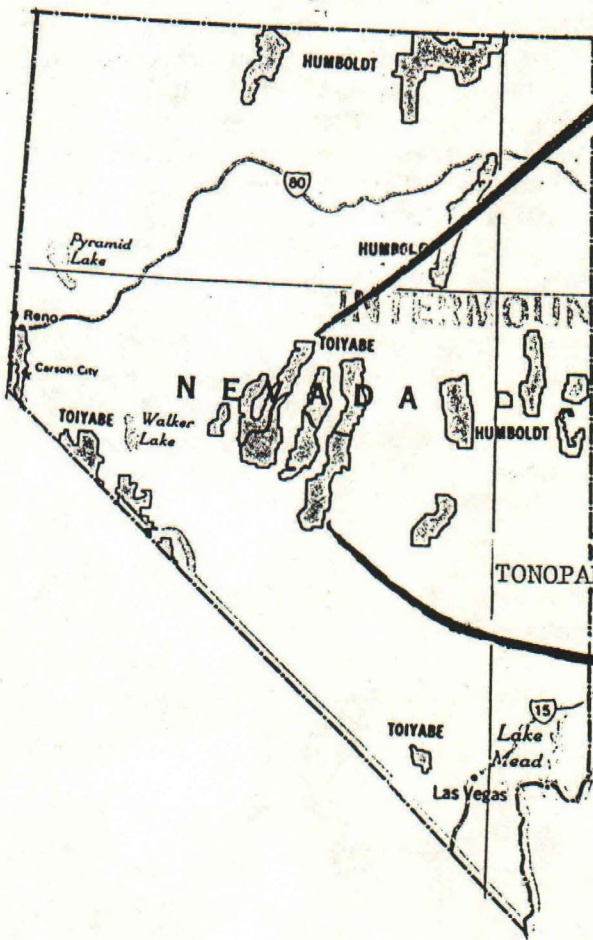
The Monitor Complex allotment is located approximately 30 miles northeast of Tonopah, Nye County, Nevada. The allotment is situated in the southern portion of the Monitor range and extends onto the southern portion of the Table Mountain Wilderness. Elevation on the allotment ranges from 6,000 to 9,700 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 -

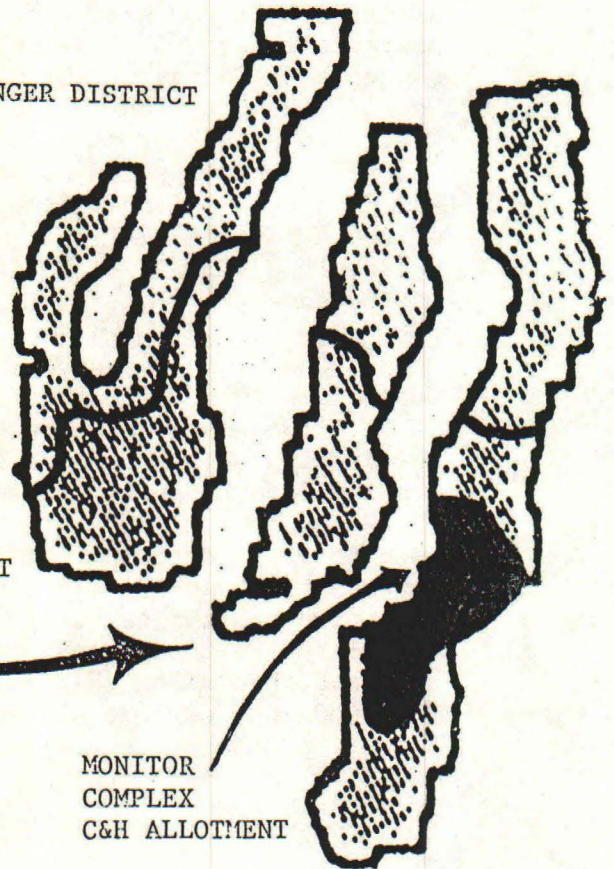


VICINITY MAP



AUSTIN RANGER DISTRICT

TONOPAH RANGER DISTRICT



MONITOR
COMPLEX
C&H ALLOTMENT

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.

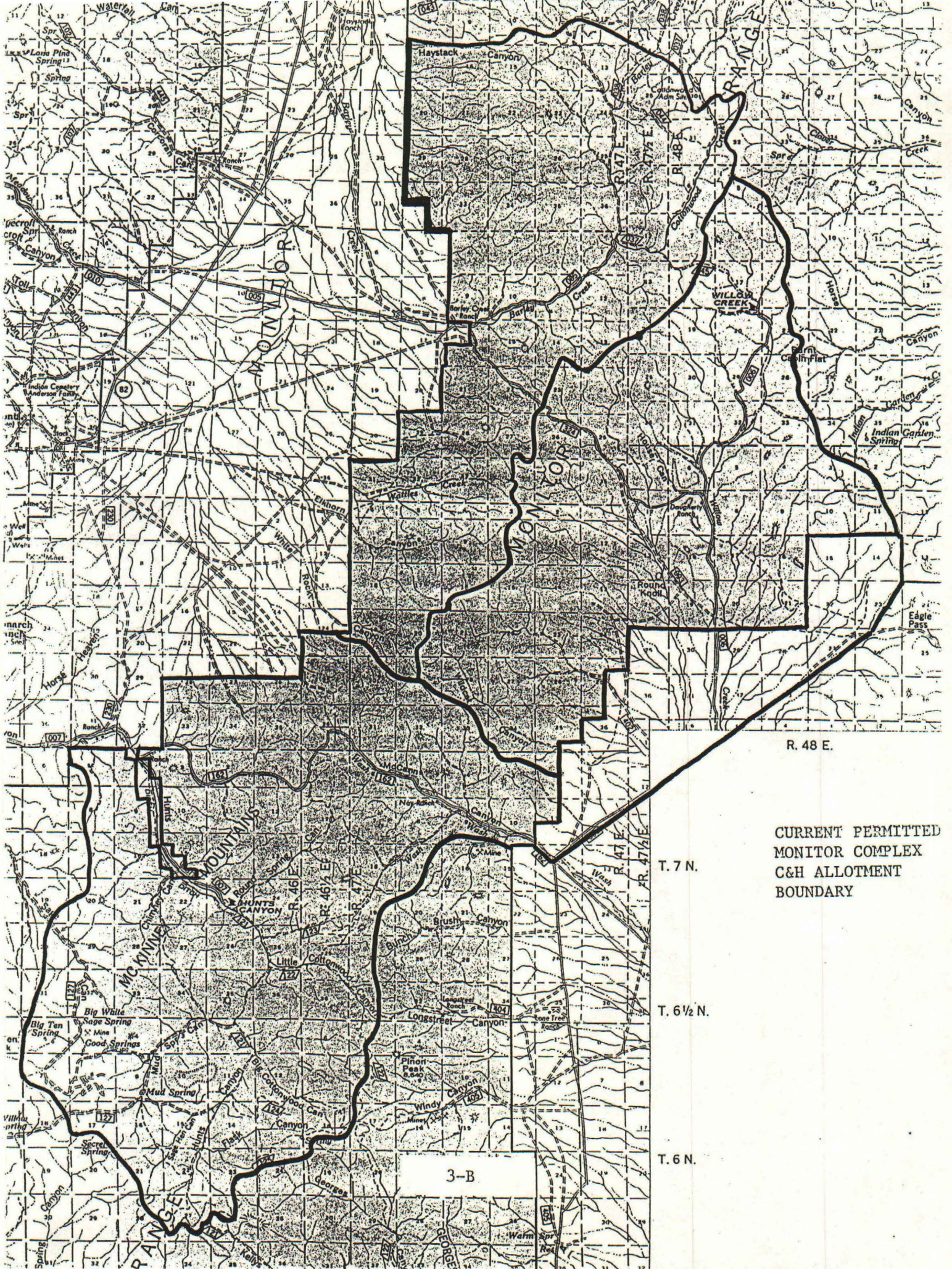
The system ran fairly smooth through the 1979 and 1980 seasons. During the 1981 season the livestock were run on the Hunts Canyon and Stone Cabin units. It quickly became obvious that the Stone Cabin Allotment was not compatible for use as part of the rest-rotation system and in 1986 it was determined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



R. 48 E.

CURRENT PERMITTED
MONITOR COMPLEX
C&H ALLOTMENT
BOUNDARY

T. 7 N.

T. 6 1/2 N.

T. 6 N.

3-B

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.

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.

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

1.4 NEED FOR ACTION

The Monitor Complex Allotment has historically never been intensively managed under any kind of system. Each unit in the past was grazed season-long, with very little distribution of livestock by riding or salting. Over-stocking in addition to season-long grazing may account for poor condition of the soil and vegetation within the suitable livestock range type.

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 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 exclosures 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.

In the late 1930's and early 1940's a few structural improvements were constructed. Today, most of those improvements are run down and need reconstruction or no longer exist. Water developments are particularly lacking and limiting management flexibility. Conversion of sagebrush to a more palatable livestock forage has been minimal and is limiting unit capacities.

Although the allotment currently is covered by an allotment management plan, the plan is not consistent with the Forest Land and Resource Management Plan. Because of these conditions, it is necessary to revise the current plan to meet present Forest Service policy and direction.

In summary, the following conditions indicate a need for action on the Monitor Complex Allotment:

1. The rest-rotation grazing system currently being practiced fails to provide for the physiological requirements of forage plants.
2. Studies indicate that vegetation and soil damage currently in progress cannot be alleviated under current stocking and management practices. The alternative of no change in grazing use is not acceptable if unsatisfactory range and watershed conditions are to be corrected.
3. Management and use of this allotment are complicated by two major factors which indicate a need for action:
 - a. Suitable primary range is confined to stream-side zones or canyon floors which confines and concentrates use and limits distribution.
 - b. The three management units making up the Monitor Complex vary in size and capacity, making each unit incompatible with the others in a simple rest-rotation system.
4. Sufficient areas of suitable range do exist to support a small livestock operation. Proper stocking and management of these suitable areas offer an opportunity for reversing current deterioration of forage and soil resources.
5. A primary requisite of allowing grazing on National Forest System lands is the capability of being managed for sustained grazing in harmony with inter-related uses. There is a need to assess the degree of competition between cattle, elk, wildhorses, and fisheries, and develop a plan that will be compatible to all four.

1.5 PUBLIC NOTIFICATION (AGENCIES/PERSONS CONSULTED)

The Grazing Impact Studies initiated in 1986, coupled with concurrent range inspections, directed the subsequent early removal of all cattle from the Monitor Complex that year. The controversies developed with the permittees during this initial interaction highlighted the need to work closely with them to resolve the problems on the allotment. In fact, that very season, on September 2, 1986, the permittees were asked to begin discussing management alternatives. After the data for that first study was compiled and during the preparation of the 1987 Annual Operating Plan the following spring, the

seriousness of the potential adjustment was explained to permittees Roy and Joe Clifford. During the fall of 1987, seeding opportunities were discussed with the permittees and three preliminary inter-agency management options were discussed with the BLM. Then, after the second Grazing Impact Study results were tabulated and during the 1988 Annual Operating Plan meeting, six preliminary management alternatives were presented to the permittees. They were again asked to present their own ideas and to begin thinking about how to best manage the Monitor Complex Allotment in light of the indicated reduced capacities.

The seriousness of the resource concerns and recognition of the significant impact the indicated livestock adjustment would have on the Stone Cabin Ranch led to the development of a Coordinated Resources Management Planning (CRMP) committee during the winter of 1988-89. CRMP is a resource planning process--an approach to solving resource problems. The formation of this CRMP committee marked the formal beginning of the public scoping process for the Monitor Allotment Management Plan.

One of the first steps in the scoping process was to identify members of the public who could be affected by the proposed plan, or who might have an interest in the decisions made for this proposed plan. Other federal, state and local governmental agencies were considered in this process. To meet the intent of Section 8 of the Public Rangelands Improvement Act (PRIA) it is important to coordinate, cooperate, and consult with permittees and other interest groups. These people and organizations were notified that an allotment plan was proposed, and were informed about the kinds of decisions to be made.

In the CRMP process, the project was described as being an allotment management plan proposed for the Monitor Complex Allotment and tentatively planned for completion prior to the 1990 grazing season. The participants were informed that the project would involve an adjustment of cattle numbers to indicated capacity and implementation of a revised rest-rotation grazing system. The CRMP committee proposed a season-long grazing system. Notification was given to the committee that this alternative is not consistent with the Forest Plan which requires a non-continuous or rest-rotation type of system. An Analysis of the Management Situation (AMS) was prepared and constraints and criteria required for consistency with the Forest Plan were explained in detail.

The following individuals, groups, organizations and agencies participated in the CRMP process for the proposed project and were invited to comment on any aspect of it, either in writing or through conversation with District Ranger Dave Grider or District Range Conservationists George Perkins or Dave Booth.

1. Livestock interest:

Monitor Complex Permittee Stone Cabin Ranch represented by Joe Clifford Jr., Roy Clifford, Margaurite Boscovitch, Joe Clifford III, and Roy Clifford Jr.

Table Mountain Permittee Jean Hage

Wagon Johnnie Permittee Tom Colvin Jr.

2. Environmental interests:
 - Randy Smith--Sierra Club
 - Dawn Lappin--Wild Horse Organized Assistance
 - Paula Wickersham--Nevada Wildlife Federation
 - Merlin Malcolm--Friends of Nevada Wilderness

3. Other publics:
 - Sherm Swanson--UNR Range Specialist
 - Jim Lusk--NDOW Big Game Biologist
 - Roger Oyler--BLM Range Conservationist

Additional public involvement and review included a September 1988 vehicle and horseback tour by the Eyewitness Channel 2 News Team from KTVN Television out of Reno, Nevada. This review resulted in a short series of news spots contrasting the resource interest of meadow and riparian area degradation in Hunts Canyon and Barley Creek with the human interest angle of the threat to the Stone Cabin Ranch and its representation of a way of life of the western rancher. These stories received state-wide media coverage.

During 1988 and the spring of 1989 a 25 minute video entitled "Bringing Back The Range" was developed by the Toiyabe National Forest Public Affairs Office. This video was filmed primarily in Central Nevada on the Austin and Tonopah Ranger Districts and graphically displays many of the resource concerns and issues related to range management. During 1989, several public affairs field trips were conducted for the purpose of promoting better understanding of current issues. These tours all began with a review of the "Hanging Onto The Range" video and then progressed to actual on-the-ground sites on the Monitor Complex Allotment where meadow degradation, stream entrenchment and loss of water table, fisheries habitat needs, benefits of rest from livestock grazing, serious overgrazing, and meadow building processes were visually observed and explained. Participants on these field reviews included:

- Robert Revert--Nye County Commissioner
- Frank Hersman--Nye County Administrator
- Fred Ketten--Tonopah Town Councilman
- Virgil Ghetto--State Senator
- Spike Wilson--Past State Senator
- Tom Ballow--Executive Director, State Division of Agriculture
- Ken Hill--Agriculture Extension Service
- Jim Lusk--Nevada Department of Wildlife
- Cliff Young--Chief Justice, Nevada State Supreme Court
- Sarah Bishop--President, Partners in Parks
- Gail Harris--Friends of Nevada Wilderness
- Jim Bradley--Subcommittee on National Parks and Public Lands
- Sara Besser, Lou Gamage, Danelle Snodgrass, and Ted Billings--Senator Richard Bryan's Congressional Aides

In December 1989, Congresswoman Barbara Vucanovich inquired in behalf of Stone Cabin Ranch about the serious impacts the proposed action will have on their ranching operation. The issues in that inquiry were answered in depth by written correspondence.

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 were considered in formulating the Issue Statements addressed in this document. Issue Statements addressed in this document are as follows (elements of the environment and issues considered, by which each alternative is evaluated in Chapter 4.4, 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).

The following list shows the issue categories in this document and indicates the corresponding page at which environmental consequences of each alternative is evaluated:

<u>ISSUE</u>	<u>PAGE</u>
Soil Resources.....	40
Water Resources.....	43
Range Vegetation.....	46
Riparian Areas.....	49
Wilderness Resource.....	50
Wildlife and Fish.....	52
Wildfire and Prescribed Burning.....	55
Visual Resources.....	56
Recreation.....	58

Social and Economic Effects.....60
Wildhorses.....63
Cultural Resources.....64
T&E Plants.....65

CHAPTER II

ALTERNATIVES, INCLUDING PROPOSED PLAN

CHAPTER 2.0 ALTERNATIVES

2.1 ALTERNATIVES CONSIDERED AND ANALYZED IN DETAIL

2.1.1 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.

2.1.2 Alternative 2. 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.

Management System This alternative provides for management of the Hunts Canyon, Barley Creek, and Willow Creek units under a rest-rotation grazing system. Each unit would be grazed for two seasons and rested for one.

In the Hunts Canyon unit, fencing would be used to exclude livestock from the stream bottoms for protection and improvement of the riparian resources. The years when Hunts Canyon is grazed, the season will start and end a month earlier than it does currently. This change would allow removal of stock from BLM a month earlier, providing rest from grazing 2 out of 3 years for the white sage during its critical growing period (mid to late May). Moving cattle onto the FS units a month earlier would encourage use of upland forage early in the season before it dries out, while decreasing use on the riparian vegetation in the bottoms.

The Barley Creek unit would be divided into Upper and Lower Barley Creek units. This division would be accomplished by using fencing to exclude livestock from the Barley Creek corridor. Exclusion of cattle would protect and enhance riparian vegetation along Barley Creek. When Barley Creek is scheduled for use, the two areas will be used concurrently to maximize distribution of cattle throughout the unit.

Grazing in the Willow Creek unit will be managed to distribute cattle away from riparian areas. Some drift fencing may be needed above the Willow Creek Administrative Site.

Three Pasture Rest-Rotation System

Year 1	Barley Creek	REST SEASON LONG	
	Willow Creek	Graze 5/15 to 9/15	55 Cows+calves
	Hunts Canyon	Graze 5/15 to 9/15	75 Cows+calves
Year 2	Barley Creek	Graze 6/10 to 10/10	90 Cows+calves
	Willow Creek	Graze 6/10 to 10/10	40 Cows+calves
	Hunts Canyon	REST SEASON LONG	
Year 3	Barley Creek	Graze 5/15 to 9/15	90 Cows+calves
	Willow Creek	REST SEASON LONG	
	Hunts Canyon	Graze 5/15 to 9/15	40 Cows+calves

Elk
Management

Elk will be managed under the Monitor Elk Herd Monitoring Plan so as to not replace use by domestic wildlife. If elk impacts indicate a need for reduction in elk numbers, then negotiations for the adjustment will be made. Damage to range improvements caused by elk will be monitored and practices implemented to alleviate the problems.

Wildhorse
Management

On January 18, 1991, BLM Wildhorse Specialist Doris Kleinheitz conducted pre-gathering wildhorse population inventories. She counted 39 wildhorses in the Willow Creek unit. 26 wildhorses within the Willow Creek unit were gathered in January 1991, during the BLM gathering process for removal of collared horses from the Stone Cabin Herd Management Area. These horses were counted and released back into the Willow Creek unit. Since the capacity derived through the 1986-1989 studies was based on total use and represents the capacity at a "thriving ecological balance", the actual count in January 1991 of 39 wildhorses will be considered to be the appropriate management level for this area.

Grazing Impact monitoring studies will include measurement of relative use by wildhorses using fecal counts in pellet-plot transects. Wildhorse population levels will be monitored and excess animals removed at appropriate opportunities.

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	T10NR471/2 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	T8NR471/2E 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 Cnyn
Mud Springs Gap Fnc	Fence New	1/2	1000	T6NR46E Sec 9	Hunts Cnyn
Hunts Canyon Gap Fnc	Fnc Recon	1/8	500	T7NR46E Sec 35	Hunts Cnyn
Little Ctnwd Gap Fnc	Fnc Recon	1/8	500	T7NR46E Sec 25	Hunts Cnyn
Discing & Seeding	Seeding	50+	2000	T7NR46E Sec 35	Hunts Cnyn
Discing & Seeding	Seeding	150+	6000	T6NR46E Sec 2,3,9	Hunts Cnyn
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	T10NR471/2E Sec 25	Barley Ck.
Willow Ck. H.C. Structures		1-2	1000	T10N48E Sec 20	Willow Ck.
Barley Ck. Fish Structures		2-4	2000	System-wide	Barley Ck.
Hunts Cnyn Fish Structures		2-4	2000	System-wide	Hunts Cnyn
Cottonwood Cnyn Fish Structures		2-4	2000	System-wide	Barley Ck.

Total cost is estimated at \$55,000+. Extensive water developments are necessary to the extent that improving distribution and storing adequate water to make the system reliable are important.

2.1.3 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.

2.1.4 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 \$36,000.

2.1.5 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 \$46,000.

2.1.6 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 \$47,000.

2.2 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 5/15-9/15	130	\$55,000
Alt 3 Remove Cattle	None	None	None	\$10,000
Alt 4 CRMP Riparian	Riparian/Ssn-Long	5/10-10/10	>100	\$36,000
Alt 5 Table Mt.	Rest-Rotation	6/10-10/10	120	\$41,000
Alt 6 Two Allotments	Riparian/Rest R.	6/10-10/10	120	\$47,000

Numbers of wildhorses and numbers of elk remain constant under all alternatives except Alternative 3 which would allow them to increase to the ecological balance indicated by current capacity information. In all other alternatives elk numbers will remain at 300, and will fluctuate only within the parameters of the Monitor Elk Herd Monitoring Plan and population agreements with the Nevada Department of Wildlife. Wildhorse numbers in the North Monitor area (Willow Creek) will remain at the ecological balance of 39 horses as determined by 1986-1990 utilization data and 1990 gathering information.

2.3 SUMMARY OF ALTERNATIVES ANALYZED IN DETAIL

Alternatives 2, 3, 5, and 6 are consistent with Forest Plan Management Direction and with the Management Area Prescription described in the Forest Plan in Chapter IV pages 4, 26-31, and 137 for the Monitor Range Management Area. Any of these alternatives could be implemented without amending the Forest Plan.

Alternative 1 is not consistent with the General Forest Plan Management Direction or Management Area Prescription Implementation of this alternative would require making an amendment to the Forest Plan. The amendments needed would deal with (1) updating AMP's that are not consistent with the Forest Plan, (2) completing necessary livestock adjustments, (3) implementing forage utilization standards, (4) achieving rangeland in satisfactory condition, (5) minimizing conflicts between grazing and recreation use in Barley Creek, and (6) eliminating headcutting in meadows.

Alternative 4 is consistent with the General Forest Plan Management Direction but is not consistent with Management Area Prescription Implementation of this alternative would require making an amendment to the Forest Plan. The amendments needed would deal with (1) implementing non-continuous management systems, (2) minimizing conflicts between grazing and recreation use in Barley Creek, (3) achieving rangeland in satisfactory condition, and (4) eliminating headcutting in meadows.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

2.4.1 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 was eliminated from detailed study 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.

2.4.2 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 suggested 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 was eliminated from detailed study 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.

2.4.3 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 was eliminated from detailed study because these units lack available water sources and capacities are marginal.

2.4.4 Alternative 10. Two Allotments: Barley Creek-Hunts Canyon Deferred, Rest-Rotation; Willow Creek Rest-Rotation.

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.

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

This alternative was eliminated from detailed study because it involves physically moving cattle between the Hunts Canyon and Barley Creek units during mid season in order to provide the prescribed deferment. Difficulties of getting cattle distributed and then gathering at mid season from extensive and rugged areas is a management impracticality.

CHAPTER III

AFFECTED ENVIRONMENT

3.1 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.

3.2 RANGE SUITABILITY

3.2.1 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.

3.2.2 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

3.2.3 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.

3.2.4 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.

3.2.5 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

RANGE TYPE	UP	%	STATIC	%	DOWN	%	TOTAL
Primary	163	1	7193	53	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

3.2.6 Sensitive Plants

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

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

3.2.7 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	

3.2.8 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 Provided	221 (147)	180 (120)	400 (267)	534 W/Rest
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 2168 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

Year	Hunts Canyon	Barley Creek	Willow Creek	Capacity
1	221	Rest	180	401
2	Rest	400	180	580
3	221	400	Rest	621
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.

3.3 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.

3.4 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.

3.5 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.

3.6 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.

3.7 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.

3.8 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.

3.9 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.

3.10 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 sitings 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 sitings in that area. The last recorded sitings 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. 1990 census information indicates that the population is currently about 39 wildhorses. This analysis proposes that this number be established as the appropriate management level since the capacity derived through the 1986-1989 studies was based on total use and represents the capacity at a "thriving ecological balance".

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.

3.11 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 HUNTS 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.

3.12 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.

3.13 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. The Forest Service recognizes a lack of knowledge concerning the impacts of elk on the winter range and the spring/fall transitional range. Although it is not expected that significant adverse impacts are occurring with present numbers, there is 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 revised in 1990. 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.

CHAPTER IV

ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter of the EA provides the analytical basis for comparison of alternatives outlined in the prior section. This section of the document identifies where irreversible or irretrievable commitments of resources may occur and where unavoidable adverse environmental effects, if any, can be expected. It discusses the anticipated environmental effects associated with implementation of the various alternatives.

4.2 IRREVERSIBLE COMMITMENTS OF RESOURCES

An irreversible commitment of resources results from actions altering an area to the extent that it cannot be returned to its undisturbed condition through perpetuity or for an extended period of time; or it is a commitment which completely utilizes a non-renewable resource.

The proposed action does not constitute an irreversible commitment of resources. This is because the management direction in any selected alternative for this proposed project can be reversed at a later time.

4.3 IRRETRIEVABLE COMMITMENT OF RESOURCES

Irretrievable commitments include lost production or lost use of renewable resources due to the passage of time. The opportunity to use a renewable resource is foregone during the period of time it is committed to other uses or during periods of non-use.

Irretrievable commitments made or not made under any alternative will be described in the following section under the discussion of effects of each alternative.

4.4 ELEMENTS OF THE ENVIRONMENT AND ISSUES CONSIDERED

4.4.1 Issue Categories

The following list shows issue categories in this document:

<u>ISSUE</u>	<u>PAGE</u>
Geology.....	39
Climate.....	40
Air Quality.....	42
Soil Resources.....	40
Water Resources.....	43
Range Vegetation.....	46
Riparian Areas.....	49
Wilderness Resource.....	50
Wildlife and Fish.....	52

Wildfire and Prescribed Burning.....	55
Visual Resources.....	56
Recreation.....	58
Social and Economic Effects.....	60
Wildhorses.....	63
Cultural Resources.....	64
T&E Plants.....	65

4.4.2 Significance Criteria

"Significance criteria" are used to determine whether the components of each alternative, considered individually or cumulatively, would or would not result in a significant environmental effect,

Each of the anticipated environmental effects was tested for "significance" against a set of criteria developed in accordance with Section 1508.27 of 40 CFR (Environmental Policy and Procedures). The criteria were used to determine whether the components of each alternative, considered individually or cumulatively, with other known or reasonably anticipated activities in the area, would or would not result in a significant environmental effect, including actions which threaten a violation of a Federal, State, or local law or requirements imposed for the protection of the environment. Information and conclusions presented here are taken primarily from interdisciplinary investigations, research, and the CRMP scoping process.

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.1. Would not maintain or improve habitat for viable populations of all existing vertebrate wildlife species.
4. Would not maintain meadows in sagegrouse range in high ecological status.
5. Would not bring all rangelands to satisfactory condition or better.
6. Would not implement a non-continuous management system.
7. Would not complete livestock adjustments needed to obtain an acceptable balance between available livestock forage and livestock numbers and season of use.
8. Would not include specific forage utilization standards, in compliance with Forest Plan prescriptions, in the livestock management system.

9. Would not manage forest habitats and activities to achieve recovery of T&E Plant species and would not ensure that sensitive plants do not become threatened or endangered.

10. Would not manage riparian areas to achieve or maintain a medium or high ecological status.

11. Results in loss of meadows due to downcutting and lowering of the water table.

12. Results in management activities that are not compatible with the wilderness concept.

13. Results in management activities that would not comply with an approved state air quality implementation plan.

14. 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.

15. Would not include an acceptable method to regulate wildhorse numbers at levels compatible with environmental constraints while maintaining the populations at viable levels.

16. Would not require identification and protection of archeologic and historic values.

17. Would not comply with the provisions of the Endangered Species Act.

The significance criteria used here were developed from comments received from members of the public, scientific literature reviewed, laws and regulations with which the Forest Service must comply, and professional judgement. The "significance criteria" used to assess the environmental effects of the proposed project and its alternatives will be discussed section-by-section below.

4.5 DIRECT AND INDIRECT ENVIRONMENTAL EFFECTS OF THE ALTERNATIVES

Geology

Geology (meaning geologic material, topography, and the forces of water and wind on the geologic materials) interacts either directly or indirectly with all other environmental factors. The Forest's geological materials have a major influence on soil development, plant species composition, and plant growth rates.

No significant effect

Implementation of the alternatives will not affect the geological material, topography or the geomorphological processes taking place on these National Forests.

Climate

Climate interacts with all other environmental components directly and indirectly. The effects of the alternatives considered here will have an insignificant effect on the climate of the National Forest.

No significant effect

Local, site-specific microclimate changes will occur. The degree of change depends upon the specific grazing system used, and the intensity, frequency, and a real extent of the system. The grazing system used in all the alternatives are intended to preserve site characteristics to the maximum extent possible. As a result, the alternatives will have an insignificant effect on microclimate of the area.

4.5.1 Evaluation and Comparison of the Alternatives.

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.

Alternative 1. No Action. Continued heavy use of critical areas will deplete vegetative cover thus increasing the amount of bare soil and intensifying rapid runoff and increasing soil loss. There will be increased soil disturbance and soil compaction. Headcutting in meadows will not be alleviated and loss of valuable meadow types will accelerate. Streambanks will continue to deteriorate.

Alternative 2. Proposed Rest-Rotation. Proper forage utilization will help increase vegetative productivity, providing for soil stabilization. Watershed values are better as the plant cover is increased by new seedlings as well as vegetative biomass. The more vigorous the plants, the more protected the watershed. Greater densities of plant and litter cover will retard surface flow and result in improved infiltration and percolation rates of water in soil. This means there will be less runoff to cause surface erosion. Exclusion of critical areas from grazing will maximize benefits to the soils resource.

Alternative 3. Remove All Livestock. This alternative will provide the maximum benefit to the soils resource, including stream bank stability and meadow building. Soils would benefit from the removal of compaction by trampling, the retention of phosphorus which is normally lost through ingestion of forage, maintenance of soil fertility, the elimination of accelerated erosion, and long-term improvements resulting from interaction of vegetation working on and modifying surface layers of the geologic parent materials. Annual fall of vegetation leaves will provide a litter layer much of which accumulates to form a mulch that reduces evaporation and enriches the soil.

Alternative 4. CRMP--Hunts Canyon Riparian/Upland System and Season-Long Use In The Barley Creek And Willow Creek Units. Proper forage utilization will help watershed values; however, season-long grazing is characterized mainly by a lack of system, since it fails to remove forage at any set time or locality. Effects to the soils resource would be somewhat better than Alternative 1 since proper stocking would be achieved; however, benefits will not be maximized with a season-long grazing system.

Alternative 5. Combine Barley Creek, Willow Creek, and Table Mountain's Dry Lake Unit. Since this alternative would achieve proper stocking and provide a rest-rotation system, the benefits to the soils resource are similar to those of Alternative 2, the Proposed Action. In Alternative 5, Hunts Canyon is closed to grazing, which would maximize benefits in this area; in Alternative 2 only critical areas are excluded from grazing.

Alternative 6. Hunts Canyon Riparian/Upland Pasture and Rest-Rotation in Barley Creek and Willow Creek. Effects to

The Effects

None of the alternatives are expected to adversely affect air quality to any significant degree. The No Action and Removal of Livestock alternatives do not provide for any new improvement construction, mechanical treatment, or prescribed burning; therefore, these alternatives would affect air quality the least.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	-	-	-	-	-	-
Smoke Pollution	0	1	0	1	1	1
Noise Pollution	0	1	0	1	1	1
Dust Pollution	0	1	0	1	1	1
TOTAL	0	3	0	3	3	3
AVERAGE	0	1	0	1	1	1

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

Effects to the watershed (water quality and quantity) correlate directly with soil conditions. The alternative comparisons related for effects to Soil Resources also apply to the effects on Water Resources.

Alternative 1. No Action. Sediment in water courses will stay at the existing level or higher. Continued use of critical areas will deplete vegetative cover, compact the soil, and intensify rapid run-off.

Alternative 2. Proposed Rest-Rotation. The increase in ground cover as a direct result from this alternative, will increase infiltration rates, which will reduce sediment loss to the water courses and eventually provide better water quality. A reduced concentration of cattle within the riparian areas will reduce stream bank disturbance and improve water quality. Benefits to water quality are significant since improvements to both esthetics and standards are expected. The development of adequate water sources will decrease the need to rely on streams as watering places. This will defer use in the riparian type and improve downstream water quality.

Alternative 3. Remove All Livestock. This alternative will provide the maximum benefit to water resources including improvements in water quality and quantity. Sediment in water courses will decrease at an accelerated rate and

eventually return to the point of very high water quality. Watersheds will receive direct benefits from increased ground cover and less exposure to erosion and excessive runoff.

Alternative 4. CRMP--Hunts Canyon Riparian/Upland System and Season-Long Use in the Barley Creek and Willow Creek Units. Proper stocking will alleviate, to some extent, streambank trampling, compaction, excessive vegetation removal, and general water quality. However, season-long use will allow for continued re-grazing of key soil-stabilizing species. Although stocking will be reduced, the preferred riparian areas will continue to receive concentrated use. Effects to the water resources would be somewhat better than Alternative 1 since proper stocking would be achieved, however, benefits will not be maximized with a season-long grazing system.

Alternative 5. Combine Barley Creek, Willow Creek, and Table Mountain's Dry Lake Unit. Since this alternative would achieve proper stocking and provide a rest-rotation system, the benefits to the water resources are similar to those of Alternative 2, the Proposed Action. In Alternative 5, Hunts Canyon is closed to grazing, which would maximize benefits in this area; in Alternative 2 only critical areas are excluded from grazing. Alternative 5 does not prescribe a division fence to maximize forage recovery opportunities in the Willow Creek Unit; Alternative 2 does.

Alternative 6. Hunts Canyon Riparian/Upland Pasture and Rest-Rotation in Barley Creek and Willow Creek. Effects to water resources by this alternative are somewhat better than Alternative 4, the CRMP Alternative, since Alternative 6 provides rest in Barley Creek and Willow Creek. However, Alternative 6 is inferior to Alternatives 2 and 5.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	*			*		
Sediment Yield	-4	3	4	1	3	2
Sreambank Sloughing	-4	3	4	1	3	2
Soil Compaction	-4	3	4	2	3	2
Intensity Of Runoff	-4	3	4	2	3	2
TOTAL	-16*	12	16	6*	12	8
AVERAGE	- 4	3	4	1.5	3	2

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

Effects to the vegetative resources correlate directly with soil conditions. The alternative comparisons related for effects to Soil Resources also apply to the affects on Range Vegetation.

Alternative 1. No Action. Continued grazing at current levels, without capital investments and improved grazing patterns, will not maintain or improve the range forage condition or trend. Re-establishment of desirable species would not occur. Vegetative deterioration will continue. Root biomass will continue to decrease. A direct result will be continued loss of carbohydrate reserves and loss of plant vigor and production.

Alternative 2. Proposed Rest-Rotation. The proposed rest-rotation system seeks to utilize forage more uniformly with range improvements. Improved distribution will allow for improvement of depleted areas, thereby improving vegetative cover, vigor, and production. General range improvement could be mid-term. Improved on-site productivity will occur directly on the type conversion areas and will be a short-term event. Changing the vegetative composition will cause both wildlife and livestock to gravitate to the newly burned or re-seeded areas because of the more palatable forage.

Alternative 3. Remove All Livestock. Vegetative resources would benefit in a short term. An immediate benefit would be increased vigor due to the retention of carbohydrate reserves. Major desirable species would once again become dominant. Stream aggradation would be moderate to dramatic resulting in raised water tables and progression to re-establishment of climax vegetative types.

Alternative 4. CRMP--Hunts Canyon Riparian/Upland System and Season-Long Use in the Barley Creek and Willow Creek Units. Improved distribution resulting from new range improvement will relieve, to some degree, heavy use in traditional concentration areas. However, there is very little flexibility in a season-long grazing system; traditional use patterns will be difficult to change. General range improvement could be long-term.

Alternative 5. Combine Barley Creek, Willow Creek, and Table Mountain's Dry Lake Unit. Since this alternative would achieve proper stocking and provide a rest-rotation system, the benefits to range vegetation are similar to those of Alternative 2, the Proposed Action. In Alternative 5, Hunts Canyon is closed to grazing, which would maximize benefits in this area; in Alternative 2 only critical areas are excluded from grazing. This alternative presents a risk to the benefits being realized from the rest-rotation system currently being used on the Table Mountain Allotment. Currently the Dry Lake Unit receives 2 years of use followed by 2 years of rest. This system would have to be revised to allow only one year of rest in every three years. This would provide fewer benefits to the vegetation than the current 2-years rest system.

Alternative 6. Hunts Canyon Riparian/Upland Pasture and Rest-Rotation in Barley Creek and Willow Creek. Effects to range vegetation by this alternative are somewhat better than Alternative 4, the CRMP Alternative, since Alternative 6 provides rest in Barley Creek and Willow Creek. Even though there are anticipated risks associated with using the Dry Lake Unit, Alternative 5 still remains superior to Alternative 6, since the risks and resource values associated with grazing the riparian area of Hunts Canyon are more significant. Alternative 6 is inferior to Alternative 2.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	*			*		
Proper Forage Utilization	-4	3	3	2	3	2
Provides Rest	-4	3	4	1	2	2
Restoration Of Climax Species	-4	3	4	1	3	2
General Range Improvement	-4	3	4	1	3	2
TOTAL	-16*	12	15	5*	11	8
AVERAGE	- 4	3	3.8	1.3	2.8	2

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

Since the components of the riparian complex are directly related to quality of soils, water, and vegetation, the effects to these resources (as already described) apply to the effects on Riparian Areas.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	*					
Sediment Yield	-4	3	4	1	3	2
Streambank Sloughing	-4	3	4	1	3	2
Riparian Complex Recovery	-4	3	4	1	3	2
Fisheries Habitat	-4	3	4	1	3	2
TOTAL	-16*	12	16	4	12	8
AVERAGE	-4	3	4	1	3	2

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.

Alternative 1. No Action. Primitive values will not improve. Declining range conditions will have negative effects on wilderness values. Existing range improvements will be left in place; however, no new improvements will be constructed to detract from the primitive scene.

Alternative 2. Proposed Rest-Rotation. This alternative eliminates grazing in the Barley Creek Canyon corridor which will remove conflicts between cattle and hikers, backpackers, and pack and saddle stock use of the Barley Creek Trail to access the Table Mountain Wilderness. The proposed grazing system and adjusted stocking will improve general range conditions, progressing over the mid-term to satisfactory conditions that are compatible with wilderness values. Construction of water developments and gap fencing may detract from primitive values if improperly constructed or located (however, their use will greatly facilitate improvements to wilderness values). The area presently has somewhat of a developed appearance and the proposed improvements would add some impact of additional detriment to primitive values.

Alternative 3. Remove All Livestock. Exclusion of livestock will have the most effect in creating primitive conditions. All existing range improvements, excepting allotment boundary fences, would be removed.

Alternative 4. CRMP--Hunts Canyon Riparian/Upland System and Season-Long Use in the Barley Creek and Willow Creek Units. Under this alternative, general range improvement and any resulting benefits to esthetic and primitive values could be long term. Conflicts in the use of Barley Creek Trail would become sensitive since that portion of Barley Creek Canyon would not be excluded from grazing. Proposed improvements would have less impact than Alternative 2 but values lost to wilderness character by not installing gap fences will be significant.

Alternative 5. Combine Barley Creek, Willow Creek, and Table Mountain's Dry Lake Unit. This alternative intensifies use within the Table Mountain Wilderness by additional impacts on the Dry Lake Unit. Observance of cattle in the primitive setting will be more frequent. Range improvements would be constructed as in the Proposed Action.

Alternative 6. Hunts Canyon Riparian/Upland System and Rest-Rotation in Barley Creek and Willow Creek. This alternative requires the same improvement schedule as presented in the Proposed Action. Effects to Wilderness Resources will be similar. However, this alternative does not provide for a division fence in the Willow Creek Unit, and distribution patterns may create a more long-term improvement in wilderness values in this area.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	*					
Barley Ck. Corridor Grazing	-4	3	4	-2	3	3
Added Improvements	2	-1	4	2	-1	-1
Livestock Presence	-4	2	4	2	1	2
TOTAL	-6*	4	12	2	3	4
AVERAGE	-2	1.3	4	.7	1	1.3

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

Effects to fish correlate directly to effects to water and riparian resources as already described.

Alternative 1. No Action. Wildlife would receive few benefits from this alternative. Competition would still exist for browse species. The deteriorated condition of many plant communities, considered primary wildlife habitat, will not improve and in many cases will continue to deteriorate. Benefits associated with use of water developments and salt provisions would continue.

Alternative 2. Proposed Rest-Rotation. Improved forage conditions in 1) elk transitional range in the Barley Creek Unit and winter range in the Hunts Canyon Unit; 2) the deer winter range in the Willow Creek Unit, and 3) sage grouse habitat adjacent to meadow types in Barley Creek and Hunts Canyon will be moderately significant. Water developments will provide additional sources for wildlife. Construction of gap fences across the elk migration route in Barley Creek could adversely affect their movement if not properly designed. Other benefits of salt usage and maintenance of an available browse stand will result from cattle grazing. Use on browse will stimulate growth and promote diversity of wildlife habitat by creating different seral stages of succession. The grazing system will provide some rest

and/or deferment of cattle grazing on browse species. Competition between cattle and wildlife will decrease in the pasture being rested.

Alternative 3. Remove All Livestock. Wildlife habitat would significantly improve to a certain point. Without using grazing as a tool beyond this point of improvement, species diversity and population could go down. Browse availability could be reduced in future years if browse growth became too high. Studies indicate that use of browse up to 50% actually stimulates growth. The best diversity and population of wildlife are at the sub-climax level.

Alternative 4. CRMP--Hunts Canyon Riparian/Upland System and Season-Long Use in the Barley Creek and Willow Creek Units. This alternative does not provide a system of rest. Competition for available forage would only decrease slightly as a result of implementation of proper use standards. Areas which are key wildlife habitat will continue to be areas of concentration, although by fewer cattle. Improvements to wildlife habitat will be limited. New water developments will be of benefit to wildlife, although existing water supplies are not a limiting factor to wildlife use of the area.

Alternative 5. Combine Barley Creek, Willow Creek, and Table Mountain's Dry Lake Unit. This alternative would provide maximum benefit to the fisheries in Hunts Canyon but would have significant impacts to existing and future status of the Monitor Elk Herd. The Dry Lake Unit is Spring/Summer elk range and provides key calving areas. Additional cattle numbers and a decrease in the amount of rest provided in this pasture could have negative effects on elk calving and seasonal use patterns. In addition, this allocation of potentially available forage could negate the possibility of increased elk population if resource conditions currently being monitored indicated such justification.

Alternative 6. Hunts Canyon Riparian/Upland System and Rest-Rotation in Barley Creek and Willow Creek. This alternative would present effects similar to the Proposed Action, excepting that the headwaters of Hunts Canyon would not be excluded. This would have negative impacts to fisheries and key wildlife streamside habitats.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	*			*	*	
Browse Competition	-3	2	3	2	2	2
Elk Transitional Range	-2	2	3	2	1	2
Deer Winter Range	-3	3	4	2	2	2
Sage Grouse Habitat	-2	2	4	1	2	2
Riparian Habitat	-4	3	4	1	3	1
Fisheries Improvement	-4	3	4	1	3	1
TOTAL	-18*	15	22	9*	13*	10
AVERAGE	- 3	2.5	3.7	1.5	2.2	1.7

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

Prescribed fire is a planned activity for minimal acreage within the Barley Creek Unit in all of the alternatives except the No Action Alternative and the Remove All Livestock Alternative. Alternative 4 allows continuous grazing and would have negative affects to providing an adequate understory to carry prescribed fire. This system also does not have the flexibility to provide rest in the prescribed area. Effects of wildfire are not significantly different for any of the alternatives, assuming that

wildlife will continue to harvest forage in the Remove All Livestock Alternative, reducing the flash-fuel grass component. As a management tool, fire would convert undesirable livestock forage to desirable forage. Fire will also benefit most wildlife species by creating a more diverse habitat.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	*					
Flexibility To Provide Rest	0	2	0	-3	2	2
Provides Grass Burning Component	0	2	0	-2	2	2
TOTAL	0*	4	0	-5	4	4
AVERAGE	0	2	0	-2.5	2	2

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

Alternative 1. No Action. There will be no additional range development to detract from the visual quality of the area. However, there will continue to be degradation to soils and vegetation which does not conform to public esthetic qualities. This management practice also allows grazing at a level that is not visually subordinate.

Alternative 2. Proposed Rest-Rotation. This alternative will introduce several fence segments, a number of water developments, and vegetation type conversions which will detract from visual quality to some observers. However, these should be mitigated due to the increased visual quality provided by decreased erosion, increased forage, clean water, increased wildlife viewing, and diversity of treated and untreated areas. Visual quality benefits within the Barley Creek drainage are particularly significant since the extent of human use and enjoyment is moderate. Fencing would be visible only to those traveling in the immediate vicinity.

Alternative 3. Remove All Livestock. Generally improved range conditions over a short term will improve esthetic values. All unnecessary range improvements will be removed. Increased visual quality will be recognized by decreased erosion, increased forage, clean water, and more public opportunities to view wildlife.

Alternative 4. CRMP--Hunts Canyon Riparian/Upland System and Season-Long Use in the Barley Creek and Willow Creek Units.

Visual quality will be maintained, but general range improvement and any resulting benefits to visual quality could be long-term.

Alternative 5. Combine Barley Creek, Willow Creek, and Table Mountain's Dry Lake Unit. This alternative maximizes the opportunity to improve visual quality in the Hunts Canyon Unit. Additional cattle in the Dry Lake Unit may detract from esthetic values within the Table Mountain Wilderness.

Alternative 6. Hunts Canyon Riparian/Upland System and Rest-Rotation in Barley Creek and Willow Creek. Effects to visual quality are inferior to the Proposed Action but superior to the CRMP Alternative.

Need For Mitigation

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

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	*					
Detraction By Improvements	0	-2	4	-1	-1	-2
Range/Riparian Visual Quality	-4	3	4	2	3	2
Wildlife Viewing	-3	2	3	1	1	2
Clean Water	-4	3	4	2	3	2
TOTAL	-11*	6	15	4	6	4
AVERAGE	-2.8	1.5	3.8	1	1.5	1

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

Alternative 1. No Action. Continued abuse of habitat resources will decrease recreation opportunities for the public. Significant loss of fisheries habitats and declines in wildlife populations will result in a short term. Dispersed recreation visitor-use days will probably continue to increase with or without a change in management.

Alternative 2. Proposed Rest-Rotation. A reduced concentration of cattle within streamside areas will reduce conflicts with recreationists. An overall improvement of wildlife and fisheries habitat will add increased recreation opportunities for the public. Additional developed water sources would be of benefit to horseback riders. The closing of the Barley Creek Trail area to grazing will eliminate conflicts in Barley Creek Canyon.

Alternative 3. Remove All Livestock. Improvement of wildlife habitat and fisheries will be accelerated. Increased public recreation opportunities will be realized in the short term.

Alternative 4. CRMP--Hunts Canyon Riparian/Upland System and Season-Long Use in the Barley Creek and Willow Creek Units. General improvement and any resulting benefits to fishing and hunting will be long-term, due to season-long grazing.

Alternative 5. Combine Barley Creek, Willow Creek, and Table Mountain's Dry Lake Unit. The preservation and enhancement of the Hunts Canyon fishery will be significant. The rest-rotation system of this alternative will provide additional recreation benefits similar to those of the Proposed Action. If elk numbers are not allowed to increase because of this alternative, the sport hunter will be adversely affected.

Alternative 6. Hunts Canyon Riparian/Upland System and Rest-Rotation in Barley Creek and Willow Creek. Improvements to recreation opportunities will be mid-term. Without eliminating the headwaters of Hunts Creek from grazing, the risk of losing this fishery is significant. Application of a rest-rotation system will enhance recreational viewing in the Barley Creek drainage.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	*			*		
Hunting Opportunities	-2	2	3	1	1	2
Fishing Opportunities	-4	3	4	0	3	0
Hiking/Horseback Riding	-2	2	3	0	2	2
Wildlife Viewing	-3	2	3	1	1	2
Scenic Viewing	-3	2	3	1	1	2
TOTAL	-14*	11	16	3*	8	8
AVERAGE	-2.8	2.2	3.2	.6	1.6	1.6

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

Although administrative action that adversely affects the permittees' ranching operation would be significant, the National Environmental Policy Act directs that "significance" is determined based on effects to the environment.

The Effects

Alternative 1. No Action. Range productivity on the allotment will continue to decrease and capacity will likewise significantly decrease within a relatively short period. No new improvements will be constructed and on-going maintenance costs will be relatively low. Initial benefits from livestock grazing would yield a misleading high cost/benefit ratio. In the long-term, however, benefits are reduced to zero when no capacity is allowed.

Social values associated with the benefits of a well-managed environment will be negative.

Alternative 2. Proposed Rest-Rotation. Adjustment of stocking to the indicated capacity will have a significant effect on the permittees' livestock operation. Economic considerations and preservation of the ranching operation are severely affected with a 75% adjustment in cattle numbers. Long-time stability of the livestock industry on National Forest System lands depends upon maintenance or improvement of the forage resource on areas suitable for grazing and proper correlation with other uses of the land. The demonstration opportunity afforded by proper range management is significant. Recovery and preservation of critical habitats is socially, environmentally, and politically significant. Social values of the user publics will be enhanced by implementation of this alternative. The more intensive management required by this management system will have economic effects on the permittees.

Alternative 3. Remove All Livestock. Exclusion of livestock grazing on the Monitor Complex Allotment would have an immediate, significantly adverse economic effect on the permittees. Although the impact would be extreme to the permittees, it would not significantly affect local or regional economics. This alternative does not support the stability of local, family ranchers nor does it encourage the socially important preservation of a "way of life". Social values, to the American public as a whole, realized from the preservation of resources afforded by this alternative may well out-weigh the negative social impacts to the minority ranching group. Economic benefits realized from increased wildlife populations and recreation opportunities could have state-wide economic benefits. The demonstration opportunity, showing the relative recovery rates of the riparian resources which will come with rest from grazing, will be highly significant.

Alternative 4. CRMP--Hunts Canyon Riparian/Upland System and Season-Long Use in the Barley Creek and Willow Creek Units. This alternative provides the best opportunity to gain the cooperation of the permittees; however, social and economic effects of a 75% adjustment in livestock numbers will have significant impacts on the permittees. Public social values will be benefited similar to the Proposed Action.

Alternative 5. Combine Barley Creek, Willow Creek, and Table Mountain's Dry Lake Unit. This alternative has social and economic effects similar to the Proposed Action, however, it also has added negative social and economic impacts to the Table Mountain Allotment permittee. Community-type grazing on the same allotment adds a unique

social complexity that often creates management difficulties.

Alternative 6. Hunts Canyon Riparian/Upland System and Rest-Rotation in Barley Creek and Willow Creek. This alternative will have the same economic and social effects as the Proposed Action.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)						
Permittee Cooperation	4	-2	-4	2	0	-2
Community Stability	2	1	1	1	1	1
Demonstration Opportunity	-4	3	4	1	2	2
Recreation Opportunity	-2	3	4	1	2	2
Employment/Income	4	-2	-4	-2	-2	-2
TOTAL	4	3	5	3	3	1
AVERAGE	.8	.6	1	.6	.6	.2

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

Wildhorse management, under the South Monitor Wildhorse Territory Management Plan, will be the same under any alternative. The Removal of All Livestock alternative would have the most effect on wildhorse movements and

populations. All of the other alternatives allow grazing and wildhorse capacities at a "thriving ecological balance"; therefore, their effects are similar.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	-	-	-	-	-	-
Availability Of Forage	-2	3	4	2	3	2
Availability Of Water	0	2	1	2	2	2
Wildhorse Movement	0	2	4	3	2	3
TOTAL	-2	7	9	7	7	7
AVERAGE	-0.7	2.3	3	2.3	2.3	2.3

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

No new improvements will be constructed under either the No Action alternative or the Remove All Livestock alternative. The range improvement schedule will require some degree of ground disturbing activity of a minor nature in Alternatives 2,4,5, and 6. The effects on cultural resources by each of these alternatives is similar.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	-	-	-	-	-	-
Ground Disturbance By Construction	0	-1	0	-1	-1	-1
Impacts To Known CR Sites	2	0	2	0	0	0
TOTAL	2	-1	2	-1	-1	-1
AVERAGE	1	-0.5	1	-0.5	-0.5	-0.5

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

Effects to sensitive plants correlate directly with effects on grazing within key habitats. In consideration of the past grazing system and the location of most of the sensitive plants, there are no anticipated adverse effects on the sensitive plants from livestock grazing.

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.

Conclusion

Alternatives are compared based on expected net benefits to the resource: 0=None; 1=Minor; 2=Moderate; 3=Significant; 4=Highly Significant. Negative values are assigned for adverse effects.

	Alternatives					
	1	2	3	4	5	6
Significantly Adverse-- (Significance Criteria)	-	-	-	-	-	-
Potential To Be Grazed	-2	0	4	0	0	0
Impacts On General Range Condition	46	3	4	1	3	2
TOTAL	-6	3	8	1	3	2
AVERAGE	-3	1.5	4	.5	1.5	1

4.5.2 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.

4.5.3 Alternative Comparison Charts

These charts summarize the expected resource benefits to each of the described issues. Scores are relative and subjective to the descriptive narratives. However, they do give a method for overall comparison of the alternatives. An asterik denotes significantly adverse environmental effects as per the significance criteria.

SUMMARY OF TOTAL RATING SCORES ON EXPECTED RESOURCE BENEFITS

Issue	Alternatives					
	1	2	3	4	5	6
Soil Resources	-20*	13	20	6*	13	8
Air Quality	0	3	0	3	3	3
Water Resources	-16*	12	16	6*	12	8
Range Vegetation	-16*	12	15	5*	11	8
Riparian Areas	-16*	12	16	4	12	8
Wilderness Resource	-6*	4	12	2	3	4
Wildlife And Fish	-18*	15	22	9*	13*	10
Wildfire And Prescribed Burning	0*	4	0	-5	4	4
Visual Resources	-11*	6	15	4	6	4
Recreation	-14*	11	16	3*	8	8
Social And Economic Effects	4	3	5	3	3	1
Wildhorses	-2	7	9	7	7	7
Cultural Resources	2	-1	2	-1	-1	-1
T & E Plants	-6	3	8	1	3	2
TOTAL	-83*	104	156	47*	97*	74

SUMMARY OF AVERAGE EXPECTED BENEFITS TO RESOURCES

Alt.	Total Issue Rating	Avg. Issue Rating	Value	Has Sig. Adverse Env. Effects	Does Not Comply With Forest Plan
1	-83	-2.1	Moderately Adverse Effect	X	X
2	104	1.9	Moderate Benefit		
3	156	2.8	Significant Benefit		
4	47	.7	Minor Benefit	X	X
5	97	1.8	Moderate Benefit	X	
6	74	1.7	Moderate Benefit		

CHAPTER V

LIST OF PREPARERS

CHAPTER 5.0 LIST OF PREPARERS

The Environmental Assessment was prepared at the Tonopah Ranger District office, Toiyabe National Forest. A Coordinated Resources Management Planning team had primary responsibility for identifying issues, concerns, and opportunities and developing alternatives. Forest Service members of the team were responsible for writing the document. Members of the team were:

Monitor Complex Permittee: Stone Cabin Ranch --
(Represented by Joe Clifford Jr., Roy Clifford, Margaurite Boscovitch, Joe Clifford III, and Roy Clifford Jr.)

Randy Smith: Sierra Club

Dawn Lappin: Wild Horse Organized Assistance

Paula Del Giudice: Nevada Wildlife Federation

Merlin McColm: Friends of Nevada Wilderness

Sherm Swanson: University Of Nevada at Reno Riparian Specialist

Jim Lusk: Nevada Department Of Wildlife Big Game Biologist

Roger Oyler: BLM Supervisory Range Conservationist

George Perkins: Las Vegas Ranger District Resource Staff Officer, B.S. in Range and Watershed Management, 15 years of experience with USDA Forest Service.

John Brack: Tonopah Ranger District Wildlife Biologist, B.S. in Wildlife Managemnt, 3 years of experience with USDA Forest Service.

Waive Stager: Tonopah Ranger District Resource Staff Officer, B.S. in Biology, M.S. in Renewable Natural Resource Management, 5 years of experience with USDI BLM; 2 years of experience with USDA Forest Service, 3 years experience with Agricultural Research Service, 3 years experience with UNR as an Assistant Research Scientist.

Dave Grider: District Ranger, Tonopah Ranger District; B.S. in Range Management, 15 years of experience with USDA Forest Service.

Additional resource specialists from the Toiyabe National Forest Supervisor's office and the Intermountain Region Forester's office were also consulted:

Ken Genz: Toiyabe National Forest Range Conservationist, B.S. in Forest and Range Management, 30 years of experience with USDA Forest Service.

Jerry Grevstad: Toiyabe National Forest Resource Staff Officer, B.S. in Wildlife Science, M.S. in Range Science, 16 years experience with USDA Forest Service.

Al Winward: Regional Ecologist, B.S. in Range Science, Ph.D. in Forestry Sciences, 11 years experience with USDA Forest Service, 10 years experience as College Professor at Oregon State University.

Robert Hamner: Regional Program Leader for Range Administration and Appeals, B.S. in Forest Management, M.S. in Range Management, 22 years experience with the USDA Forest Service, 2 years experience with USDI BLM.

Don Duff: Regional Fisheries Ecologist, B.S. in Wildlife Management, 16 years experience with the USDA Forest Service, 7 years experience with the USDI BLM, and 3 years experience with the U.S. Fish and Wildlife Service.

Tom Collins: Regional Soils Scientist, B.S. Soils Science and Forest Soils, 29 years experience with USDA Forest Service.

CHAPTER VI

LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS
TO WHOM DOCUMENTS WERE SENT

CHAPTER 6.0 LIST OF AGENCIES, ORGANIZATIONS, AND INDIVIDUALS
TO WHOM DOCUMENTS WERE SENT

The following federal and state agencies and organizations were solicited for comments on the Proposed Action and on the Environmental Assessment:

STATE AND FEDERAL AGENCIES

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CHAPTER VII

REFERENCES

CHAPTER 7.0 REFERENCES

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McColm, Merlin, Friends of Nevada Wilderness; Letter of Agreement and Support of Proposed 3 Pasture Rest-Rotation Grazing System, July 31, 1990.

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2210 Range Management Planning Files for Hunts Canyon, Barley Creek, Willow Creek, and Monitor Complex C&H Allotments; Tonopah Ranger District, Toiyabe National Forest.

2230 Grazing Permit Administration Files for Stone Cabin Ranch, Tonopah Ranger District, Toiyabe National Forest.