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Forest Service
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Dixie National Forest
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Environmental Assessment

for

Issuance of 10-Year Term Grazing Permits Cedar City Ranger District Sheep Allotments

ENVIRONMENTAL ASSESSMENT

ISSUANCE OF 10-YEAR TERM GRAZING PERMITS
CEDAR CITY RANGER DISTRICT
SHEEP ALLOTMENTS

DIXIE NATIONAL FOREST
IRON/GARFIELD/KANE COUNTIES

Responsible Agency: USDA, Forest Service

Responsible Official: Ronald L. Wilson
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ABSTRACT

The Cedar City Ranger District is proposing to issue 10 year permits to authorize the grazing of sheep on the following allotments beginning in the 1996 grazing season and terminating December 31, 2005.

Black Mountain
Dandelion Knoll
Deep Creek
Deer Valley
Haycock Creek
Haycock Mountain/Brian Head
Sage Valley/Horse Valley
Six Lakes/Navajo Ridge

WILSON SUGGESTS WILDCRIP PERMITTING

In addition to the General Terms and Conditions which are standard to Part 2 of the Grazing Permit, term grazing permits proposed for issuance will include these additional terms and conditions: 1) Forest Plan standards and guidelines for utilization, 2) Structural and non-structural range improvement maintenance assignments, 3) Requirements for livestock distribution, 4) Allotment Management Plans and Annual Operating Plans, and 5) Requirements for Cultural Resource clearances for any proposed range projects.

This Environmental Assessment documents the analysis of the Proposed Action and one alternative to the Proposed Action--the No Action alternative, which would result in not issuing permits to graze sheep on the above allotments.

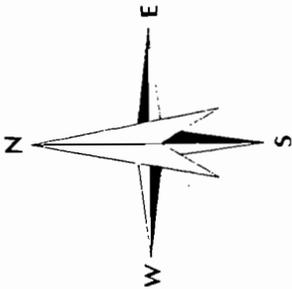
TABLE OF CONTENTS

Vicinity Map.....	i
District Map.....	ii
List of Appendices.....	iii
List of Tables.....	iv
CHAPTER 1: PURPOSE AND NEED FOR ACTION.....	1
Introduction.....	1
Proposed Action.....	1
Purpose And Need.....	2
Forest Plan (LRMP) Direction.....	3
Incorporation By Reference.....	3
Decision To Be Made.....	4
CHAPTER 2: PUBLIC INVOLVEMENT/ISSUES AND ALTERNATIVES, INCLUDING THE PROPOSED ACTION.....	5
Issues.....	5
Nonsignificant Issues.....	6
Alternative Development.....	6
Alternatives Considered, But Not Studied In Detail.....	7
Alternatives Considered In Detail.....	8
Description Of Alternatives.....	11
Proposed Action.....	11
Connected Actions.....	11
No Action.....	11
Mitigation Measures.....	11
Comparison Of Alternatives.....	12
CHAPTER 3: AFFECTED ENVIRONMENT.....	13
Project Area.....	13
Existing Conditions.....	13
CHAPTER 4: ENVIRONMENTAL CONSEQUENCES.....	24
Introduction.....	24
Vegetation.....	24
Threatened, Endangered, Proposed and Sensitive Plants.....	26
Threatened, Endangered and Proposed Plant Species.....	27
Sensitive Plant Species.....	27
Wildlife.....	30
Threatened, Endangered and Proposed Wildlife.....	32
Sensitive Wildlife Species.....	35
Wildlife Management Indicator Species.....	38
Other Species of Concern.....	41
Soils.....	43
Hydrology And Water Quality.....	44
Fisheries And Aquatic Macroinvertebrates.....	46
Recreation/Visuals.....	48
Social/Economics.....	49
Cultural Resources.....	50

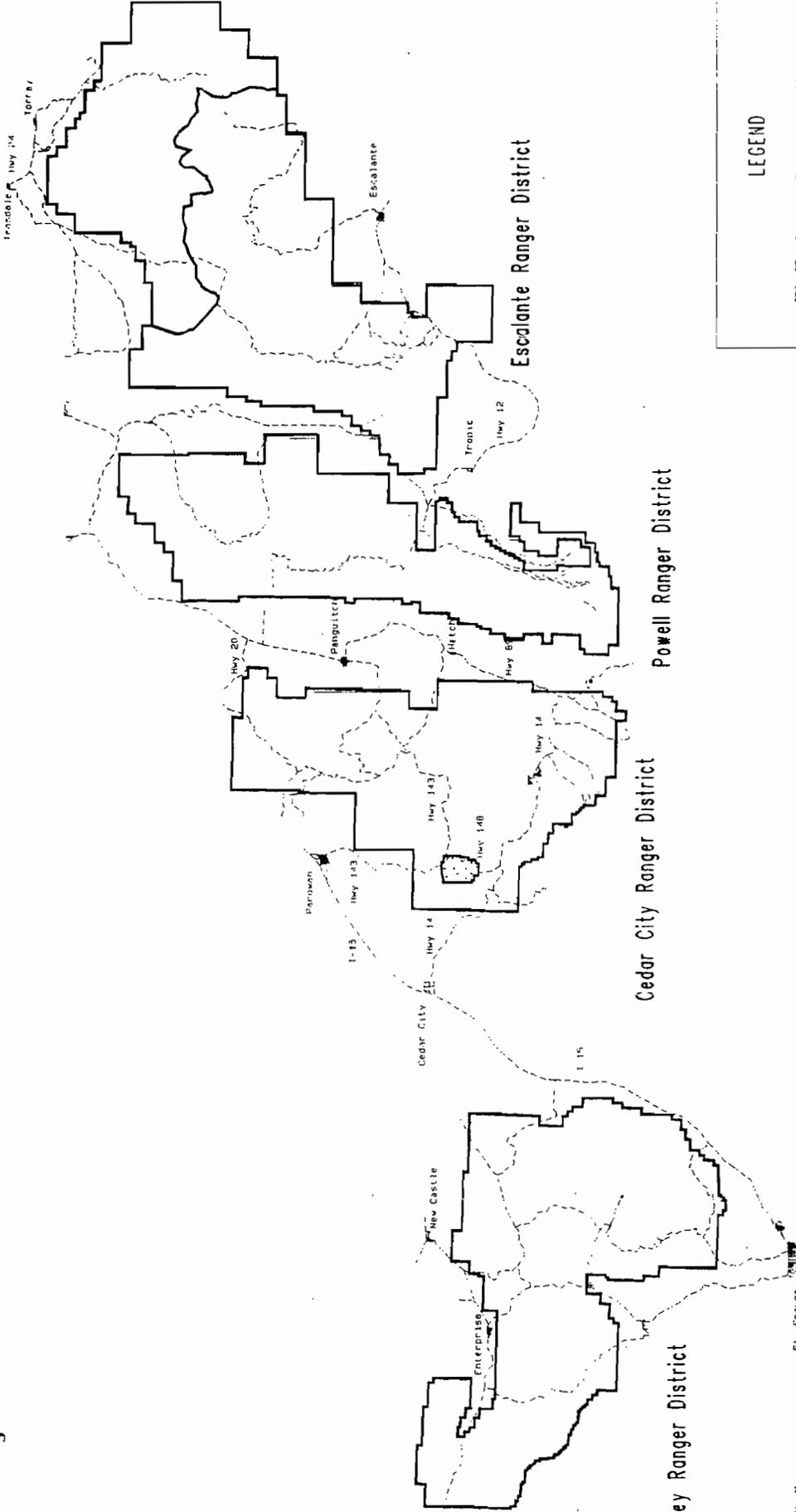
Monitoring.....	51
Key Areas.....	52
CHAPTER 5: LIST OF PREPARERS.....	53
APPENDIX A:.....	54
APPENDIX B:.....	57



Dixie National Forest Ranger Districts Vicinity Map



Teesdale Ranger District



Pine Valley Ranger District

Cedar City Ranger District

Powell Ranger District

Escalante Ranger District

LEGEND

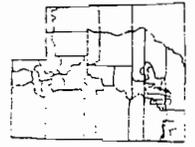


Cedar Breaks National Monument



Major Roads

VICINITY MAP



LIST OF APPENDICES

- A. Monitoring Forms
- B. Allotment Maps

LIST OF TABLES

TABLE NO.	TABLE TITLE	PAGE
1	Proposed Action.....	1
2	Proper Use Criteria.....	10
3	Comparison Of Alternatives.....	12
4	Existing Conditions.....	16
5	Key Areas.....	52

CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

This chapter outlines the Proposed Action, and the Purpose and Need that drove its development. It also discusses the relationship of this document to the Dixie National Forest Land and Resource Management Plan (LRMP, 1986) along with other laws and regulations.

INTRODUCTION

This Environmental Assessment (EA) discloses the environmental effects of continued livestock grazing under term permits on the Cedar City Ranger District, Dixie National Forest. The allotments on the Cedar City Ranger District are located in Iron, Garfield, and Kane Counties in southern Utah on the Northern and Southern Markagunt Plateaus (see enclosed map.) The proposed permits contained in this analysis authorize grazing on approximately 150,000 acres of National Forest land, as determined by the Dixie National Forest Land and Resource Management Plan, 1986 (LRMP).

PROPOSED ACTION

TABLE 1

Allotment Name	Total Acres	Proposed Livestock #	Season of Use	Grazing System
Black Mountain	24,249	1,000	6/21 - 9/30	Dfrd - rotat
Dandelion Knoll	2,442	995	7/11 - 8/20	Dfrd - rotat
Deep Creek	16,372	1,029	7/1 - 8/31	Dfrd - rotat
Deer Valley	5,074	800	7/11 - 8/31	Season-Long
Haycock Creek	17,997	1,000	6/11 - 10/10	Dfrd - rotat
Haycock Mt/Brian Hd	15,464	1,000	6/11 - 9/30	Dfrd - rotat
Sage Valley/Horse V.	11,474	1,350	6/26 - 10/10	Dfrd - rotat
Six Lakes/Navajo Rdg	16,884	1,230	6/21 - 10/10	Dfrd - rotat

The Cedar City Ranger District is proposing to issue 10 year permits to authorize the grazing of sheep on the grazing allotments listed (Table 1) beginning in the 1996 grazing season and terminating December 31, 2005. In addition to the General terms and conditions which are standard to Part 2 of the Term Grazing Permit, Part 3 of the permits will include the following additional terms and conditions:

Land and Resource Management Plan Standards and Guidelines (S&G's) for utilization, streambanks and channel restoration, riparian area management, Threatened & Endangered Species, wildlife, plant and fish habitat.

Structural range improvement maintenance assignments.

Non-structural range improvement maintenance assignments.

Requirements for livestock distribution, including herding and salting.

Allotment Management Plans and Annual Operating Plans.

Requirements for cultural resource and Threatened, Endangered, Proposed and Sensitive plant, wildlife and fish species clearances for any proposed range projects.

PURPOSE AND NEED

The purpose of the proposed action is to allow grazing of sheep on National Forest land of the Cedar City Ranger District by issuing a ten-year term grazing permit in compliance with the Dixie National Forest Land and Resource Management Plan (LRMP).

In addition, the purpose of this action is to incorporate and implement applicable standards and guidelines of the LRMP (including compliance with applicable laws, regulations and policies) in the grazing permit authorizing livestock use on the Cedar City sheep allotments.

A third purpose is to meet Forest Service multiple use objectives for obtaining proper utilization of available forage on suitable rangelands.

A comparison of the desired future condition for the range lands of these allotment(s) and the existing range condition indicated the following needs:

Haycock Creek

There is occasional heavy use exceeding utilization S&G's on the Williams Hollow, Lower Haycock Creek, Upper Haycock, and Ipson units near watering sources and bedgrounds. There is a need to develop additional water sources to improve distribution of livestock.

Six Lakes-Navajo Ridge

There is an active gully in Long Valley that is still down-cutting. There is a need to stabilize and promote healing of the gully. There is also a need to closely monitoring grazing in the area above the gully to ensure no impacts which would aggravate the gully condition.

Deep Creek

Trailing of the sheep in the head of Deep Creek is limiting re-establishment of vegetation. There is a need to evaluate the trailing patterns of the sheep in the Deep Creek drainage and modify trailing as needed to improve channel stability.

Sage Valley-Horse Valley

There is occasional heavy use exceeding utilization S&G's in Kings Valley in the Horse Valley pasture. There is a need for the permittee to reduce current utilization levels in Kings Valley to improve conditions in that area.

More intensive monitoring in the Horse Valley pasture to ensure that proper use criteria is met.

Black Mountain, Dandelion Knoll, Deer Valley, Haycock Mountain/Brian Head

These allotments comply with all laws, regulations, and Forest Plan requirements. The allotments are in satisfactory condition in stable or upward trend. There were no needs identified on these allotments during the NFMA analysis. Monitoring will be done as scheduled to meet proper use criteria.

FOREST PLAN (LRMP) DIRECTION

Development of this document follows the implementing regulations of the National Forest Management Act of 1976 (NFMA), Title 36: Code of Federal Regulations Part 219 (36 CFR 219); National Environmental Policy Act of 1969 (NEPA), Title 40; Code of Federal Regulations, Parts 1500-1508. This Environmental Assessment (EA) is tiered to the Dixie National Forest Land and Resource Management Plan (LRMP) - Final Environmental Impact Statement (1986).

This analysis incorporates direction provided in the LRMP (1986). The LRMP guides natural resource management activities and has established management direction and Standards and Guidelines for management of the Dixie National Forest.

The Forest-wide Standards and Guidelines (S&G's) describe environmental protection measures to be applied to all lands on the Dixie National Forest unless superseded by the specific management area S&G's (LRMP, pages IV-24 to IV-55). Management Area Standards and Guidelines describe measures to be applied to geographic subdivisions of the Forest, each with a different resource management emphasis. There are 19 Management areas on the Dixie National Forest, detailed in Chapter IV of the LRMP. Each includes specific management direction and S&G's. Implementation of the Forest-wide and specific management Area direction and S&G's would move the project area towards the "Desired Future Condition" described in the LRMP (LRMP, pages IV-19 to IV-23).

INCORPORATION BY REFERENCE

Regulations to implement the National Environmental Policy Act (NEPA) provide for the reduction of bulk and redundancy in environmental impact statements and environmental assessments (40 CFR 1502.21), through incorporation by reference when the effect will reduce the size of the document without impeding agency and public review of the action. The incorporated material shall be cited in the statement and its content briefly described.

Documents incorporated by reference in this environmental assessment include:

1. A Comprehensive Literature Review of the Effects of Livestock Grazing on Natural Resources
2. NFMA analysis notes of existing condition, desired future condition, and prescriptive actions maintained in the project file
3. Dixie National Forest Land and Resource Management Plan
4. Riparian Inventory Reports for the Cedar City Ranger District
5. National Historic Preservation Act (NHPA) Memorandum of Understanding
6. Programmatic BA of the Effects of Grazing on the Mexican Spotted Owl

DECISION TO BE MADE

The Responsible Official is the District Ranger of the Cedar City Ranger District. This document will provide the Responsible Official with the basis upon which to make an informed decision. Following a review of this document, for each allotment, the Responsible Official will decide to do one of the following:

1. Issue term grazing permit as proposed.
2. Issue term grazing permit under conditions other than proposed.
3. Not issue term grazing permit.

CHAPTER 2
PUBLIC INVOLVEMENT, ISSUES AND ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes the Proposed Action and alternatives to the Proposed Action which were designed to respond to key issues while still addressing the Purpose and Need identified in Chapter 1. As required by law, a "No Action Alternative" (not permitting grazing) is considered.

A public involvement process was initiated to identify relevant public concerns about the proposed action and to identify significant issues to be addressed in the environmental analysis. Interested and affected parties were contacted by the following public involvement activities:

- Annual correspondence to permittees and annual operating meetings with permittees about their permit.
- A formal scoping letter detailing the proposed action was sent to 418 interested parties, seeking public comments for a 30 day period between July 11, 1995 and August 11, 1995.
- An update letter that was sent to permittees, elected officials, and interested members of the public to inform them of recent legislative developments and to provide clarification of the proposed action, proper utilization and to better describe the needs for the connected actions.
- Correspondence and discussions with interested parties from March of 1995 to present.

The Forest Service Interdisciplinary Team (IDT) thoroughly reviewed comments received from people interested in the proposal. All concerns raised by the public were addressed by 1) mitigation measures, 2) features of the proposed action, and/or 3) the no action alternative--which would not permit sheep grazing.

ISSUES

During the existing condition phase of the National Forest Management Act (NFMA) analysis the Interdisciplinary Team (IDT) developed a preliminary list of issues. These issues were directly related to the issuing of term grazing permits, including grazing in riparian areas, grazing in threatened, endangered and sensitive species habitat and soil and water quality within the allotments, and the affects of these activities on the natural resources and local economy of the area. The Dixie National Forest LRMP allows for the grazing of livestock in compliance with Forest-wide and Management Area Standards and Guidelines. Part of the focus of the NFMA Analysis is to assess how well existing conditions comply with S&G's.

Information and concerns from the public responses to scoping, from resource specialist in the USDA Forest Service, and from other public agencies were used to identify significant issues. The Interdisciplinary Team evaluated the initial public and agency information and confirmed there were no significant

NEPA issues that would drive the development and evaluation of additional alternatives.

Scoping was used to identify issues that are of significance to drive the formulation of additional alternatives to the proposed action. A process of issue sorting was used to analyze and sort comments to determine if a significant issue was expressed in the comment. The five criteria listed below were used to evaluate comments:

1. Non-significant issue identification--the issue is recorded but not included in further documentation. (A non-significant issue is an issue where the issue is outside the scope of the proposed action, the issue is already decided by law, regulation, forest plan or other higher level decision, the issue is irrelevant to the decision to be made, the issue is conjectural and not supported by scientific evidence, the issue has limited extent, duration and intensity.)
2. A measurement indicator--if the indicator is valid, it is adopted, if not, it is recorded but not included in further documentation.
3. Additional affected environment--if the additional affected environment is valid, it is adopted, if not, it is recorded but not included in further documentation.
4. An additional alternative--if the additional alternative is valid it is adopted; if not, it is recorded but not included in further documentation.
5. The identification of a "significant issue"--significant issues are carried forward in the analysis process. (A "significant issue" is a dispute with the environmental effects of the proposed action.)

NONSIGNIFICANT ISSUES

Some respondents indicated concern that livestock grazing may cause degradation of the environment-- soil and water quality, wildlife and plant species and recreational experiences. Most of these comments are associated with situations of overgrazing, which is a conflict with the Proposed Action. However, the Proposed Action prescribes grazing at proper use which is consistent with providing for the needs of the environment. Overgrazing is not carried forward as a formal issue because the LRMP allows livestock grazing at proper use as part of its multiple use mandate. Additionally, the NO ACTION alternative, which will be analyzed in detail, effectively displays the effects of no grazing.

ALTERNATIVE DEVELOPMENT

A reasonable range of alternatives to the proposed action was developed to:

1. Meet the purpose and need for the project, which includes meeting Standards and Guidelines of the LRMP.
2. Consider a reasonable range of solutions for the issues.

The Term Grazing Permit Issuance ID Team developed a set of grazing strategies to address each issue. Intensive data analysis and field trips to critical allotments were made by the team to jointly verify on-the-ground conditions and how initial strategies should be adjusted. Complimentary strategies including connected actions for resolving issues were combined to form single alternatives.

In order to consider a reasonable range of solutions to the issues, the ID Team developed eight potential alternatives and a No Action Alternative. Seven of these alternatives were "considered, but not studied in detail". These alternatives were listed first, including the reasons why they were not carried forward for "detailed consideration". Following this discussion is the description of the two alternatives, Proposed action and No Action that are "considered in detail".

ALTERNATIVES CONSIDERED, BUT NOT STUDIED IN DETAIL (including discussion of rationale for not considering the alternative further)

Alternative 1

This alternative allows continued sheep grazing under the Terms and Conditions of the expiring permit. While this alternative would allow sheep grazing on existing allotments, the current prescribed utilization standards will not meet the purpose and need as described in Chapter 1. In some instances riparian communities that meet or are moving towards the desired future condition could be moved away from the desired future condition without changes in the Terms and Conditions of the Grazing Permit. For this reason this alternative will not receive further detailed study in this analysis.

Alternative 2

This alternative issues Term Grazing Permits for less than 10 years. While this alternative would allow sheep grazing on existing allotments it would not comply with Section 504 of Public Law 104-19 requiring that all grazing permits be issued for a full 10-year term. For this reason this alternative will not receive further detailed study in this analysis.

Alternative 3

This alternative allows renewal of grazing permit but with different levels of stocking. While this alternative would allow sheep grazing on existing allotments it would not comply with Section 504 of Public Law 104-19 requiring that all grazing permits be issued for current numbers. NFMA analyses indicated that these allotments are currently stocked within indicated capacities. For this reason this alternative will not receive further detailed study in this analysis.

Alternative 4

This alternative prescribes the use of different grazing systems at various levels of stocking. While this alternative would allow sheep grazing at various levels on the existing allotments, it was not studied in detail because appropriate changes in grazing strategies were considered and/or made in the

Proposed Action, which does not preclude future administrative changes in grazing strategies. For this reason this alternative will not receive further detailed study in this analysis.

Alternative 5

This alternative excludes livestock grazing from riparian areas. While this alternative would allow sheep grazing on upland areas of the existing allotments, it is impractical to exclude all riparian areas from grazing, and would reduce or restrict other uses of riparian systems. Although some studies indicate that exclusion of grazing by fencing is the quickest method to improve deteriorated riparian areas, studies also show that proper grazing by sheep has acceptable effects on riparian resources. Recognizing that riparian areas are integral components of the affected environment, Management Area Direction and Standards and Guidelines have been included in the LRMP to protect and enhance riparian systems. For this reason this alternative will not receive further detailed study in this analysis.

Alternative 6

This alternative provides protection of wildlife habitat alternative. Both alternatives considered in detail provide for wildlife habitat. This is because the alternatives considered in detail comply with applicable laws, regulations, management direction and LRMP Standards and Guidelines. For this reason this alternative will not receive further detailed study in this analysis.

Alternative 7

This alternative prescribes changing kind and/or class of livestock on existing allotments. This alternative would allow grazing of livestock on existing allotments but would require additional site-specific analysis to determine the suitability of range conditions to effect such a change. This alternative does not meet the purpose and need described in Chapter One which is to allow sheep grazing on National Forest land. Additionally, Section 504 of Public Law 104-19 specifically legislates the issuance of a grazing permit be accomplished under the the same terms and conditions as the expired permit. For these reasons this alternative will not receive further detailed study in this analysis.

ALTERNATIVES CONSIDERED IN DETAIL

This environmental assessment describes two alternatives in detail. They are the Proposed Action - issue 10 year permits to authorize grazing and the No Action - where grazing permits are not issued.

In addition to the General Terms and Conditions which are standard to Part 2 of the Term Grazing Permit, Part 3 of Term Grazing Permits will include terms and conditions relative to:

- Structural range improvement maintenance assignments.
- Non-structural improvement maintenance assignments. Rangeland areas which have been mechanically treated to manipulate vegetation conversions from

either pinyon-juniper or sagebrush vegetation types (with or without reseeding), for the specific purpose of providing livestock forage will be assigned for permittee maintenance in Part 3 of the Grazing Permit. Portions of livestock grazing capacities are based on the production of these treated areas. If, during the tenure of this permit, forage production in these areas declines, substantially affecting grazing capacity, adjustment of livestock numbers or season of use will be administratively made.

- Requirements for livestock distribution, including herding and salting.
- Allotment Management Plans and Annual Operating Plans.
- Requirements for cultural resource clearances for any proposed range projects.
- Forest Plan standards and guidelines for utilization, streambank and channel restoration, riparian area management, Threatened, Endangered and Sensitive Species, plant, wildlife and fish habitat.

The following standards, in Table 2, define proper use criteria incorporated in Part 3 of the permit. These standards are within the parameters prescribed in the Dixie National Forest Land and Resource Management Plan (LRMP) but provide more definitive criteria. This is not an all-inclusive listing of proper use criteria. Proper use criteria are determined by application of limiting factors such as presence of Threatened, Endangered or Proposed and Sensitive fish, wildlife, or plant species or critical/sensitive resource areas. Therefore, some utilization prescriptions may be less than these maximum standards. Any one of these standards will indicate the proper time to remove livestock from that pasture or allotment:

Table 2
Proper Use Criteria

Vegetation Type	Utilization By Seral Stage				Comments
	Very Early	Early	Mid	Late	
Hydric species in riparian areas	6" SH*	6" SH	4" SH	4" SH	Remaining at end of growing season
Riparian Management Area 9B	6" SH	6" SH	6" SH	6" SH	Remaining at end of growing season.
Hydric species in wet meadows not influenced by streams	6" SH	6" SH	4" SH	4" SH	Remaining at end of growing season
Non-hydric species in riparian areas	2" SH	2" SH	2" SH	2" SH	Remaining at end of growing season.
Streambanks	----- <20% disturbance-----				Sloughing, trampling, dislodged stones, animal tracks.
Riparian browse	-----<50%-----				New leader production.
Upland	50%	50%	50%	50%	Varying in specific unit from 40-60%.
Crested wheatgrass	60%	60%	60%	60%	Mgmt option to intensively graze at higher level to maintain healthy seeding.
Goshawk post-fledgling family areas (PFAs)					
Ponderosa Pine/Mixed species--use criteria applies in up to 2-acre openings in 600-acre area:					
Spruce-Fir--use criteria applies in up to 1-acre openings in 600-acre area:					
Grass,Forb	-----average 20% by weight-----				Not exceed 40%.
Shrub	-----average 40% by weight-----				Not exceed 50%.
Goshawk foraging areas					
Ponderosa Pine/Mixed Species--use criteria applies in up to 4-acre openings in 6000-acre area:					
Spruce-Fir--use criteria applies in up to 1-acre openings in 6000-acre area:					
Grass,Forb	-----average 20% by weight-----				Not exceed 40%.
Shrub	-----average 40% by weight-----				Not exceed 50%.

*SH= Stubble Height

DESCRIPTION OF ALTERNATIVES

PROPOSED ACTION

The Cedar City Ranger District is proposing to issue 10 year permits to authorize the grazing of sheep on the grazing allotments listed in Chapter 1, beginning in the 1996 grazing season and terminating December 31, 2005. In addition to the General Terms and Conditions which are standard for Part 2 of the Term Grazing Permit, term grazing permits proposed for issuance will include the additional terms and conditions added to Part 3 of the respective permits.

CONNECTED ACTIONS

Connected actions are those actions required to be implemented in order to permit livestock grazing. No needs were identified, for any allotments, during analysis which required implementation of connected actions.

IMPROVEMENTS NEEDED FOR BETTER LIVESTOCK DISTRIBUTION AND FORAGE UTILIZATION

Haycock Creek

1. Construct Haycock Creek ponds located in SE 1/4 Section 15, NW 1/4 Section 15, Se 1/4 Section 16, and NW 1/4 Section 23, T. 35 S. R. 7 W. Each pond will affect an area less than 1/4 acre in size.

NO ACTION

The grazing permit would not be issued. The No Action alternative would not permit grazing on the allotments described in Chapter 1.

MITIGATION MEASURES

Report and record any sightings of threatened, endangered, proposed or sensitive species and implement appropriate protection measures as stated in recovery plans, habitat conservation plans, LRMP or other approved plans or in compliance with direction given by the forest, zone or district wildlife biologist, fish biologist or botanist.

Cultural resource sites known within these allotments shall be protected. If a site is located during management improvement operations, operations would cease until the site is evaluated by the forest archeologist (or qualified designate). Prior to activities and operations to effect range improvement activities such as water developments or fencing, the appropriate archeological inventories and consultation under the supervision of the forest archeologist (or qualified designate) shall occur.

COMPARISON OF ALTERNATIVES

TABLE 3
COMPARISON OF ALTERNATIVES BY PURPOSE AND NEED, FOREST PLAN CONSISTENCY AND LAW

<u>ALTERNATIVE</u>	<u>ADDRESSES PURPOSE AND NEED</u>	<u>FOREST PLAN CONSISTENCY</u>
Proposed Action	Yes- The proposed action authorizes sheep grazing and incorporates standards and guidelines from the LRMP. It also requires proper utilization of available forage.	Yes- This action would gradually move the allotments towards the desired future condition in the Plan and identified during the NFMA analysis.
No Action	No-This alternative would not authorize sheep grazing. It would not meet multiple use objectives.	No- This alternative does not meet the desired future condition in the LRMP. It does not comply with PL-104-19.

CHAPTER 3: AFFECTED ENVIRONMENT

PROJECT AREA

The sheep allotments on the Cedar City Ranger District cover approximately 150,000 acres on the North and South Markagunt Plateaus in Iron, Garfield, and Kane Counties in southern Utah (see location and vicinity map). Communities located adjacent to the Markagunt Plateau are Cedar City, Enoch, Summit, Parowan, Paragonah, Panguitch, Hatch, Alton, Glendale, and Orderville.

The Markagunt Plateau is a gently sloping, eastward tilting earth block that has been modified by erosion, volcanism, and some glaciation. Elevations range from approximately 6,500 feet in the valleys to over 11,300 feet at Brian Head. Vegetation types range from pinyon-juniper and sagebrush, through ponderosa pine, aspen, and spruce-fir forests, to the subalpine meadows of Brian Head Peak. Riparian ecosystems may occur within any or all of these vegetative types. Watersheds draining the allotments to the east and south are tributary to the Virgin River; watersheds draining to the east and north are tributary to the Sevier River; the Parowan and Coal Creek watersheds drain these allotments to the west into the Cedar/Beaver closed basin.

The Six-Lakes/Navajo Ridge Allotment encompasses a large portion of the Ash Down Gorge Wilderness and lies adjacent to the Cedar Breaks National Monument. The Ashdown Gorge Wilderness is located about 10 miles directly east of Cedar City. The Dandelion Knoll and Sage Valley/Horse Valley Allotments are also adjacent to the Cedar Breaks National Monument.

EXISTING CONDITIONS

The following tables describe the existing condition of only those components of the affected environment within the respective allotments which may be affected by the proposed management activities. The resources described are: vegetation, threatened, endangered, proposed and sensitive plants and animals, soil, water, fish, recreation, and critical wildlife habitat for management indicator species. Critical wildlife habitat is defined by Utah Division of Wildlife Resources or the Forest Service and has no relationship to critical habitat designated by the U.S. Fish and Wildlife Service or National Marine Fisheries for threatened or endangered species. Critical habitat has not been designated on the Dixie National Forest for any Federally listed threatened or endangered species.

The information presented in Chapter 3 is based on information contained in the Project File, located at the Dixie National Forest. The existing terms of the respective permits with regard to numbers, season of use and grazing system is listed at the top of each table.

Several components of the affected environment that may be present on the allotment were not analyzed in detail because the interdisciplinary team and the consultation process with regulatory agencies determined that there would be little or no effects from livestock grazing to these components and

connected actions such that further analysis would not be needed. These components are:

Wildlife: During the informal consultation process the Dixie National Forest and the U.S. Fish and Wildlife Service concurred that the following threatened, endangered, and sensitive species are not affected by grazing and that further analysis would not be needed. These species and the rationale for this determination are shown below. (T indicates threatened species, E for endangered and S for Regional Forester designated sensitive species.)

Bald eagle (T) (<u>Haliaeetus leucocephalus</u>)	There are no nests or roosts on the Dixie National Forest. Occurrences are in fall or spring before or after grazing has occurred. The most limiting habitat component for bald eagles is large diameter trees which are not affected by grazing.
Peregrine Falcon(E) (<u>Falco peregrinus anatum</u>)	Peregrines forage within one mile of a nest for 80% of their foraging. Therefore only allotments that graze within this distance are analyzed in Chapter 4, as agreed with USFWS.
Three-toed Woodpecker(S) (<u>Picoides tridactylus</u>)	The limiting habitat component for this species is snags, which are not affected by grazing.

Bat species considered under Species of Concern in Chapter 4 are: California myotis (Myotis californicus), Western small-footed bat (Myotis ciliolabrum), Long-eared myotis (Myotis evotis), Fringed myotis (Myotis thysanodes), Long-legged myotis (Myotis volans), Yuma myotis (Myotis yumanensis), Allen's big-eared bat (Idionycteris phyllotis), and Brazilian free-tailed bat (Tadarida brasiliensis). See Grazing Literature Review and the Biological Assessment for Threatened, Endangered and Proposed Species for Grazing Permit Issuance on the Dixie National Forest for further discussions regarding the effects of grazing on these species.

The Management Indicator Specie that is not affected by grazing and requires no further analysis is:

Northern Flicker (<u>Colaptes auratus</u>)	The limiting habitat component is snags, which are not affected by grazing.
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The Brian Head Recovery Project Environmental Impact Statement and Record of Decision has described replacing the yellow-breasted chat with habitat conditions to indicate health of riparian habitats. These conditions include:

1. Dominant late seral plant community stages
2. All age classes represented
3. Shrubs having multiple stems and canopy layers in continuous patches with limited openings throughout
4. Native species dominant with grasses forbs, shrubs, and litter present
5. Natural dynamic processes functioning throughout the system.

Cultural Resources: A Memorandum of Understanding has been prepared that identified sites needing to be addressed with this analysis. None of these sites are present on the allotments under analysis.

Under "Soil/Water" on Table 4, reference is made to 303(d) water bodies. 303(d) water bodies are those that the State of Utah Division of Water Quality has identified as not meeting State standards for designated beneficial uses. Also listed under this resource is a listing of High Priority Watersheds that have been identified by the State of Utah for non-point source pollution control. The specific pollutant parameters abbreviated are: DO, dissolved oxygen; Nut, Nutrients; TSS, total suspended solids; TDS, total dissolved solids; temp, temperature; pH and Iron.

Following, in Table 4, is a summary of existing resource conditions on the affected allotments (summarized from Project File NFMA analysis record).

TABLE 4
EXISTING RESOURCE CONDITIONS

ALLOTMENT: Black Mountain (Sheep)

Numbers: 1000 Season of Use: 6/21-9/30 Grazing System: Deferred-rotation

RESOURCE	FEATURE	CONDITION	LOCATION
Vegetation	Riparian-Alpine	- - -	Not present.
	Riparian-Other	- - -	Not present.
	Reseeded (SB/Brome)	Satisfactory	Uinta, Bowers, Burrows Flats.
	Upland	Satisfactory	Black Mountain/Dry Flat.
TEPS Plants	Aquarius Paintbrush	- - -	Not present.
	Tushar Paintbrush	- - -	Not present.
	Paria Breadroot	- - -	Not present.
	Parodox Moonwart	- - -	Not present.
	Arizona Willow	- - -	Not present.
Soils/Water	Streambanks	- - -	Not present.
	Riparian Size	- - -	Not present.
	Soil Productivity	No adverse impacts.	Throughout Allotment.
	Sediment Delivery to streams	- - -	Not present.
	303(d) Water Bodies	- - -	Not present.
	High Priority H2O-sheds	- - -	Not present.
Fish MIS	Viable Populations	- - -	Not present.
	Streamside Cover	- - -	Not present.
	Macroinvertebrates	- - -	Not present.
Recreation	Developed Sites	- - -	Not present.
	Dispersed Sites	No known conflicts.	Mammoth Cave, Bowers Cave.
	Wilderness	- - -	Not present.
Wildlife TEPS Habitat	Mexican Spotted Owl	- - -	Not present.
	Northern Goshawk	Active nesting/foraging	Bowers Flat Pasture.
	SW Willow Flycatcher	- - -	Not present.
	Peregrine Falcon	Within 10 miles of nest.	Portions of both pastures.
	Utah Prairie Dog	- - -	Not present.
	Spotted Bat	Potential Foraging.	Throughout allotment.
	Western Big-eared bat	Potential Foraging.	Throughout allotment.
Flammulated Owl	Active nesting/foraging.	Throughout allotment.	
Other Species of Concern	Sage Grouse	-	-
	Western Burrowing Owl	-	-
	Bats	Foraging Habitat	Throughout allotment.
	Brian Head Mountainsnail		Not present.
Wildlife MIS Critical Habitat	Mule deer	- - -	Not present.
	Rocky Mountain Elk	- - -	Not present.
	Wild Turkey	- - -	Not present.
	Yellow-Breasted Chat	- - -	Not present.
Cultural Resources	Historic Properties	Not Susceptible	All Surveyed Sites

ALLOTMENT: Dandelion Knoll (sheep)

Numbers: 995 Season of Use: 7/11-8/20
Deferred-rotation.

Grazing System:

RESOURCE	FEATURE	CONDITION	LOCATION
Vegetation	Riparian-Alpine	Satisfactory.	Mammoth Creek, Lower Creek.
	Riparian-Other	- - -	Not present.
	Reseeded	- - -	Not present.
	Upland	Satisfactory.	Dandelion Knoll, So. of U-143, Mammoth Summit.
TEPS Plants	Aquarius Paintbrush	- - -	Not present.
	Tushar Paintbrush	- - -	Not present.
	Paria Breadroot	- - -	Not present.
	Parodox Moonwort	- - -	No known locations
	Arizona Willow	Meets Conservation Strategy.	On all pastures.
Soils/Water	Streambanks	Stable.	Throughout Allotment.
	Riparian Size	Stable or increasing.	Throughout Allotment.
	Soil Productivity	No adverse impacts.	Remainder of Allotment.
	Sediment Delivery to streams	Within acceptable limits.	Throughout Allotment.
	303(d) Water Bodies	- - -	Not present.
High Priority H2O-sheds	- - -	Not present.	
Fish MIS	Viable Populations	Healthy Brook trout. Healthy Rainbow trout.	Lower and Mammoth Creeks. Mammoth Creek.
	Streamside Cover	Satisfactory.	Lower and Mammoth Creeks.
	Macroinvertebrates	Not measured.	Lower and Mammoth Creeks.
Recreation	Developed Sites	- - -	Not present.
	Dispersed Sites	No known conflicts.	U-143 scenery viewing, camping, hunting, fishing.
	Wilderness	- - -	Not present.
Wildlife TEPS Habitat	Mexican Spotted Owl	- - -	Not present.
	Northern Goshawk	Foraging habitat.	Throughout the Allotment.
	SW Willow Flycatcher	- - -	Not present.
	Peregrine Falcon	Within 2-10 miles of nest.	Throughout the Allotment.
	Utah Prairie Dog	- - -	Not present.
	Spotted Bat	Potential foraging.	Throughout allotment.
	Western Big-eared bat	Potential foraging.	Throughout allotment.
Flammulated Owl	Probable foraging.	Coniferous habitat in allotment.	
Other Species of Concern	Sage Grouse	- - -	Not present.
	Western Burrowing Owl	- - -	Not present.
	Bats	Potential Foraging.	Throughout allotment.
	Brian Head Mountainsnail	- - -	Not present.
Wildlife MIS Critical Habitat	Mule deer	- - -	Not present.
	Rocky Mountain Elk	- - -	Not present.
	Wild Turkey	- - -	Not present.
	Yellow-Breasted Chat	- - -	Not present.
Cultural Resources	Historic Properties	Not Susceptible	All Surveyed Sites

ALLOTMENT: Deep Creek (sheep)

Numbers: 1029

Season of Use: 7/1-8/30

Grazing System: Deferred-Rotation.

RESOURCE	FEATURE	CONDITION	LOCATION
Vegetation	Riparian-Alpine	- - -	Not present.
	Riparian-Other	Satisfactory	Willis Creek, Deep Creek & Ike's Valley.
	Reseeded	- - -	Not present.
	Upland	Satisfactory.	Upper Deep Creek, Dry Valley, Ike's Valley.
TEPS Plants	Aquarius Paintbrush	- - -	Not present.
	Tushar Paintbrush	- - -	Not present.
	Paria Breadroot	- - -	Not present.
	Parodox Moonwort	- - -	No known locations.
	Arizona Willow	- - -	No known locations.
Soils/Water	Streambanks	Unstable	Parts of Deep Creek and Ike's Valley.
		Stable	All other streambanks.
	Riparian Size	Decreasing	Head of Deep Creek.
		Stable or increasing.	All other riparian.
	Soil Productivity	Adverse impacts.	Head of Deep Creek, Ike's Valley pond.
		No adverse impacts.	Remainder of Allotment.
	Sediment Delivery	Within acceptable limits.	Throughout Allotment.
	303(d) Water Bodies	Temp, Iron, TDS, TSS.	North Fork Virgin River & tributaries.
	High Priority H2O-sheds	- - -	Not present.
Fish MIS	Viable Populations	Fair to good cutthroat and brook trout.	Deep Creek.
		Marginal Fisheries.	Willis Creek.
	Streamside Cover	Decreasing.	Head of Deep Creek.
	Macroinvertebrates	BCI 88 in 1987	Deep Creek.
Recreation	Developed Sites	- - -	Not present.
	Dispersed Sites	No known conflicts; potential conflicts with grazing.	Virgin River Rim Trail.
	Wilderness	- - -	Not present.
Wildlife TEPS Habitat	Mexican Spotted Owl	- - -	Not present.
	Northern Goshawk	Active nesting and foraging.	Throughout the Allotment.
	SW Willow Flycatcher	- - -	Not present.
	Peregrine Falcon	Within 10 miles of nest.	Throughout the Allotment.
	Utah Prairie Dog	- - -	Not present.
	Spotted Bat	Potential foraging.	Throughout allotment.
	Western Big-eared bat	Potential foraging.	Throughout allotment.
Flammulated Owl	Probable foraging.	Throughout allotment.	
Other Species of Concern	Sage Grouse	- - -	Not present.
	Western Burrowing Owl	- - -	Not present.
	Bats	Possible foraging.	Throughout allotment.
	Brian Head Mountainsnail	- - -	Not present.
Wildlife MIS Critical Habitat	Mule deer	Fawning.	Willis Creek Pasture.
	Rocky Mountain Elk	- - -	Not present.
	Wild Turkey	- - -	Not present.
	Yellow-Breasted Chat	- - -	Not present.
Cultural Resources	Historic Properties	Not Susceptible	All Surveyed Sites

ALLOTMENT: Deer Valley (sheep)

Numbers: 800 Season of Use: 7/11-8/30 Grazing System: Season-long.

RESOURCE	FEATURE	CONDITION	LOCATION
Vegetation	Riparian-Alpine	- - -	Not present.
	Riparian-Other	- - -	Not present.
	Reseeded	- - -	Not present.
	Upland	Satisfactory.	Lava Spring Flat, Upper Deer Valley.
TEPS Plants	Aquarius Paintbrush	- - -	Not present.
	Tushar Paintbrush	- - -	Not present.
	Paria Breadroot	- - -	Not present.
	Parodox Moonwart	- - -	No known locations.
	Arizona Willow	- - -	No known locations.
Soils/Water	Streambanks	- - -	Not present.
	Riparian Size	- - -	Not present.
	Soil Productivity	No adverse impacts.	Throughout allotment.
	Sediment Delivery to streams	- - -	Not present.
	303(d) Water Bodies	- - -	Not present.
	High Priority H2O-sheds	- - -	Not present.
Fish MIS	Viable Populations	- - -	Not present.
	Streamside Cover	- - -	Not present.
	Macroinvertebrates	- - -	Not present.
Recreation	Developed Sites	- - -	Not present.
	Dispersed Sites	No known conflicts.	Camping, hunting, hiking, annual Rendezvous event.
	Wilderness	- - -	Not present.
Wildlife TEPS Habitat	Mexican Spotted Owl	- - -	Not present.
	Northern Goshawk	Active foraging.	Throughout the Allotment.
	SW Willow Flycatcher	- - -	Not present.
	Peregrine Falcon	Within 10 miles of nest.	Throughout the Allotment.
	Utah Prairie Dog	- - -	Not present.
	Spotted Bat	Potential foraging.	Throughout allotment.
	Western Big-eared bat	Potential foraging.	Throughout allotment.
Flammulated Owl	Potential nesting/foraging.	Coniferous habitat in allotment.	
Other Species of Concern	Sage Grouse	- - -	Not present.
	Western Burrowing Owl	- - -	Not present.
	Bats	Potential foraging.	Throughout allotment.
	Brian Head Mountainsnail	- - -	Not present.
Wildlife MIS Critical Habitat	Mule deer	- - -	Not present.
	Rocky Mountain Elk	- - -	Not present.
	Wild Turkey	- - -	Not present.
	Yellow-Breasted Chat	- - -	Not present.
Cultural Resources	Historic Properties	Not Susceptible	All Surveyed Sites

ALLOTMENT: Haycock Creek (sheep)

Numbers: 1000 Season of Use: 6/11-10/10 Grazing System: Deferred-Rotation.

RESOURCE	FEATURE	CONDITION	LOCATION
Vegetation	Riparian-Alpine	- - -	Not present.
	Riparian-Other	Satisfactory.	Upper Rt. Fk. Haycock Creek, Haycock Creek right and left forks, Ipson Creek.
		Stable or down trend.	Skoots Creek.
	Reseeded (Sage to CW) Upland	Satisfactory. Satisfactory.	William's Hollow and Lower Haycock. So. end of 5-mile, Lower William's Hollow, Upper Haycock, Mud Springs Flat.
TEPS Plants	Aquarius Paintbrush	- - -	Not present.
	Tushar Paintbrush	- - -	Not present.
	Paria Breadroot	- - -	Not present.
	Parodox Moonwart	- - -	No known locations.
	Arizona Willow	- - -	No known locations.
Soils/Water	Streambanks	Stable	All streambanks in allotment.
	Riparian Size	Stable.	Throughout allotment.
	Soil Productivity	No adverse impacts.	Throughout allotment.
	Sediment Delivery to streams	Within acceptable limits.	Throughout Allotment.
	303(d) Water Bodies	TDS, Iron. Nutrients.	Sevier River. Panguitch Lake.
	High Priority H2O-sheds	Nutrients, TSS	Panguitch Lake.
Fish MIS	Viable Populations	Healthy CT trout, brook trout	Haycock Creek mouth.
		Marginal fisheries	Upper Ipson Creek.
		Healthy fisheries	Panguitch Lake.
	Streamsides Cover Macroinvertebrates	Marginal Fisheries. Greater than 40%. BCI 74 and 80 in 1989.	Willis Creek. Haycock Creek, Ipson Creek. Ipson Creek.
Recreation	Developed Sites	No known conflicts.	White Bridge Campground, Boat Ramp at Panguitch Lake.
	Dispersed Sites	No known conflicts.	Camping, hunting, fishing, system trails, hiking, riding, OHV, woodcutting, sightseeing, fall aspen viewing.
	Wilderness	- - -	Not present.
Wildlife TEPS Habitat	Mexican Spotted Owl	- - -	Not present.
	Northern Goshawk	Foraging probable.	Throughout the Allotment.
	SW Willow Flycatcher	- - -	Not present.
	Peregrine Falcon	- - -	Not present.
	Utah Prairie Dog	Active.	Adjacent to Forest on PVT land
	Spotted Bat	Potential foraging.	Throughout allotment.
	Western Big-eared bat	Potential foraging.	Throughout allotment.
Flammulated Owl	Potential foraging.	Coniferous habitat in allotment.	
Other Species of Concern	Sage Grouse	- - -	Not present.
	Western Burrowing Owl	- - -	Not present.
	Bats	Potential foraging.	Throughout allotment.
	Brian Head Mountainsnail	- - -	Not present.
Wildlife MIS Critical Habitat	Mule deer	Fawning.	Upper Haycock.
	Rocky Mountain Elk	Calving.	Upper Haycock.
	Wild Turkey	- - -	Not present.
	Yellow-Breasted Chat	- - -	Not present.
Cultural Resources	Historic Properties	Not Susceptible	All Surveyed Sites

ALLOTMENT: Haycock Mountain/Brian Head (sheep)

Numbers: 1000 Season of Use: 6/11-9/30 Grazing System: Deferred-Rotation.

RESOURCE	FEATURE	CONDITION	LOCATION
Vegetation	Riparian-Alpine	Satisfactory.	Head of Mammoth Creek.
	Riparian-Other	Satisfactory.	Panguitch Creek.
	Reseeded	- - -	Not present.
	Upland	Satisfactory.	Coal Pit Spring, Haycock Mountain, Sage Flat at Square Pond, Skunk Spring Area, Head of W. Fk. of Castle Creek.
TEPS Plants	Aquarius Paintbrush	- - -	Not present.
	Tushar Paintbrush	- - -	Not present.
	Paria Breadroot	- - -	Not present.
	Parodox Moonwart	- - -	No known locations.
	Arizona Willow	Meets Conservation Strategy	Rainbow Meadows.
Soils/Water	Streambanks	Stable	All streambanks in allotment.
	Riparian Size	Stable.	Throughout allotment.
	Soil Productivity	No adverse impacts.	Throughout allotment.
	Sediment Delivery to streams	Within acceptable limits.	Throughout Allotment.
	303(d) Water Bodies	TDS, Iron. Nutrients.	Sevier River. Panguitch Creek.
	High Priority H2O-sheds	Nutrients, TSS	Panguitch Lake.
Fish MIS	Viable Populations	Healthy Rainbow, brown trout Class 3 fisheries.	Panguitch Creek.
		Marginal fisheries.	Mammoth Creek.
	Streamside Cover Macroinvertebrates	Not known. Not measured in this allotment.	Panguitch Creek Mammoth Creek, Panguitch Creek.
Recreation	Developed Sites	No known conflicts.	White Bridge Campground adjacent to allotment, Brian Head Peak.
	Dispersed Sites	Some conflicts - limited.	Camping, hunting, fishing, system trails, hiking, riding, OHV, woodcutting, sightseeing, fall aspen viewing, Mountain biking.
	Wilderness	- - -	Not present.
Wildlife TEPS Habitat	Mexican Spotted Owl	- - -	Not present.
	Northern Goshawk	Active nesting and foraging.	Throughout the Allotment.
	SW Willow Flycatcher	Present during breeding season	Adjacent Forest on Private.
	Peregrine Falcon	Within 2-10 miles of nest.	Over parts of allotment.
	Utah Prairie Dog	Potential habitat.	Coal Pit area.
	Spotted Bat	Potential foraging.	Throughout allotment.
	Western Big-eared bat	Potential foraging.	Throughout allotment.
Flammulated Owl	Probable foraging.	Coniferous habitat in allotment.	
Other Species of Concern	Sage Grouse	Summer Range.	Coal Pit Pasture.
	Western Burrowing Owl	Potential habitat.	Coal Pit pasture.
	Bats	Potential foraging.	Throughout allotment.
	Brian Head Mountainsnail	Documented occurrence.	Brian Head area.
Wildlife MIS Critical Habitat	Mule deer	Fawning.	Haycock Mountain and Coal Pit pastures.
	Rocky Mountain Elk	Wintering.	South Canyon.
	Wild Turkey	- - -	Not present.
	Yellow-Breasted Chat	- - -	Not present.
Cultural Resources	Historic Properties	Not Susceptible	All Surveyed Sites
Cultural Resources	Historic Properties	Not Susceptible	All Surveyed Sites

ALLOTMENT: Sage Valley/Horse Valley (sheep)

Numbers: 1350 Season of Use:6/26-10/10 Grazing System: Deferred-Rotation.

RESOURCE	FEATURE	CONDITION	LOCATION
Vegetation	Riparian-Alpine	Satisfactory.	Midway Creek.
	Riparian-Other	Satisfactory.	Clear Creek.
	Reseeded	- - -	Not present.
	Upland	Satisfactory.	The Lease, Kings Valley, Bull Pasture, Blowhard Exclosure, Sage Valley 3-step and Midway Meadow 3-step.
TEPS Plants	Aquarius Paintbrush	- - -	Not present.
	Tushar Paintbrush	- - -	Not present.
	Paria Breadroot	- - -	Not present.
	Parodox Moonwart	- - -	No known locations.
	Arizona Willow	Meets Conservation Strategy	Midway.
Soils/Water	Streambanks	Unstable Stable	Part of Midway Creek. All other streambanks.
	Riparian Size	Stable or increasing.	All in allotment.
	Soil Productivity	No adverse impacts.	Throughout allotment.
	Sediment Delivery to streams	Within acceptable limits.	Throughout Allotment.
	303(d) Water Bodies	TDS, Iron. Temp, Nutrients.	Sevier River. Clear Creek.
	High Priority H2O-sheds	Nutrients, TSS	Panguitch Lake.
Fish MIS	Viable Populations	Healthy cutthroat Population present.	Clear Creek. Small piece of Ipson Creek.
	Streamside Cover	Not impacted by grazing.	Clear Creek, Ipson Creek.
	Macroinvertebrates	BCI 86 in 1987. BCI 74 and 80 in 1989 below allotment.	Clear Creek. Ipson Creek.
Recreation	Developed Sites	- - -	Not present.
	Dispersed Sites	No known conflicts.	Biking, hiking, hunting, fishing in Head of Clear Creek, system trail, sightseeing.
	Wilderness	- - -	Not present.
	National Monument	Fenced	Cedar Breaks NM
Wildlife TEPS Habitat	Mexican Spotted Owl	- - -	Not present.
	Northern Goshawk	Active nesting and foraging.	Throughout the Allotment.
	SW Willow Flycatcher	- - -	Not present.
	Peregrine Falcon	Within 2-10 miles of nest.	Over parts of allotment.
	Utah Prairie Dog	- - -	Not present.
	Spotted Bat	Potential foraging.	Throughout allotment.
	Western Big-eared bat	Potential foraging.	Throughout allotment.
Flammulated Owl	Potential foraging.	Coniferous habitat in allotment.	
Other Species of Concern	Sage Grouse	Summer Range.	Horse Valley Pasture.
	Western Burrowing Owl	- - -	Not present.
	Bats	Potential foraging.	Throughout allotment.
	Brian Head Mountainsnail	- - -	Not present.
Wildlife MIS Critical Habitat	Mule deer	- - -	Not present.
	Rocky Mountain Elk	Calving.	Horse Valley.
	Wild Turkey	- - -	Not present.
	Yellow-Breasted Chat	- - -	Not present.
Cultural Resources	Historic Properties	Not Susceptible	All Surveyed Sites

ALLOTMENT: Six Lakes/Navajo Ridge (sheep)

Numbers: 1230 Season of Use: 6/21-10/10 Grazing System: Deferred-rotation.

RESOURCE	FEATURE	CONDITION	LOCATION
Vegetation	Riparian-Alpine	Satisfactory.	Mammoth Meadows, Cabin Flat
	Riparian-Other	Satisfactory.	West Fk. Red Creek
	Reseeded	- - -	Not present.
	Upland	Satisfactory.	Last Chance Canyon, Cabin Flat, Long Valley, Six Lakes Enclosure, Tinks Racetrack, Navajo Ridge, Bear Flat Hole.
TEPS Plants	Aquarius Paintbrush	- - -	Not present.
	Tushar Paintbrush	- - -	Not present.
	Paria Breadroot	- - -	Not present.
	Parodox Moonwort	- - -	No known locations
	Arizona Willow	Meets Conservation Strategy.	Long Valley, Mammoth, Bear Flat Hole Pastures.
Soils/Water	Streambanks	Natural instability. Stable.	Head of Red Creek, Rattlesnake Creek, Brown Creek. Remainder of Allotment.
	Riparian Size	Stable or increasing.	All except where natural instability occurs.
	Soil Productivity	Adverse impacts. No adverse impacts.	Long Valley headcutting, sheep trailing compaction. Remainder of Allotment.
	Sediment Delivery to streams	Within acceptable limits	Throughout Allotment.
	303(d) Water Bodies	- - -	Not present.
	High Priority H2O-sheds	- - -	Not present.
Fish MIS	Viable Populations	- - -	Not present.
	Streamside Cover	- - -	Not present.
	Macroinvertebrates	Not measured	Perennial streams
Recreation	Developed Sites	No known conflicts.	Adjacent to Brian Head Ski Resort.
	Dispersed Sites	No known conflicts.	Bear Flat camping, system trails.
	Wilderness	No known conflicts.	Ashdown Gorge Wilderness.
	National Monument	Fenced	Cedar Breaks NM
Wildlife TEPS Habitat	Mexican Spotted Owl	Confirmed wintering and juvenile dispersal habitat.	Ashdown Gorge Wilderness.
	Northern Goshawk	Potential foraging habitat.	Throughout the Allotment.
	SW Willow Flycatcher	- - -	Not present.
	Peregrine Falcon	Within 1 mile of nest.	Navajo Ridge Pasture
	Utah Prairie Dog	- - -	Not present.
	Spotted Bat	Potential foraging.	Throughout allotment.
	Western Big-eared bat	Potential foraging.	Throughout allotment.
Flammulated Owl	Potential foraging.	Coniferous habitat throughout allotment.	
Other Species of Concern	Sage Grouse	- - -	Not present.
	Western Burrowing Owl	- - -	Not present.
	Bats	Potential foraging.	Throughout allotment.
	Brian Head Mountainsnail	- - -	Not present.
Wildlife MIS Critical Habitat	Mule deer	- - -	Not present.
	Rocky Mountain Elk	- - -	Not present.
	Wild Turkey	- - -	Not present.
	Yellow-Breasted Chat	- - -	Not present.
Cultural Resources	Historic Properties	Not Susceptible	All Surveyed Sites

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

The environmental effects provide the scientific and analytical basis for the comparison of the Proposed Action with the alternatives described in Chapter 2. They include direct, indirect, and cumulative effects on the resources described in Chapter 3, Affected Environment.

Direct, indirect, and cumulative effects of livestock grazing on the resources and activities summarized in this chapter are discussed in detail in their respective chapters of the paper entitled "A Comprehensive Literature Review of the Effects of Livestock Grazing on Natural Resources" and the NFMA analysis notes contained in the Project File, located at the Dixie National Forest. Both records are incorporated here by reference (40 CFR 1502.21). Site-specific resources identified in Chapter 3 are the basis for discussion in this chapter.

VEGETATION

PROPOSED ACTION

DIRECT/INDIRECT EFFECTS

Refer to Table 6 for key areas on the sheep allotments for the Cedar City Ranger District.

Proper use criterion prescribed under this alternative will provide for the physiological requirements of vegetation in all the pastures on the Black Mountain, Dandelion Knoll, Deep Creek, Deer Valley, Haycock Creek, Haycock Mountain/Brian Head, Sage Valley, and Six Lakes/Navajo Ridge sheep allotments.

Grazing at proper use by the permitted livestock numbers, season of use and prescribed grazing system for each allotment would ensure that short and long term objectives for upland and riparian vegetation are met. Proper use will be achieved by permittee compliance with the terms and conditions of the grazing permit including the specified standards for that allotment.

Implementing standards would improve overall ecological condition and trend. Vegetation diversity would increase. Native plants would increase and undesirable plants would decrease.

In the NFMA analysis, specific areas on the Deep Creek, Six Lakes/Navajo Ridge, and Haycock Creek allotments were identified for improvement needs (see Chapter 2). Pond developments on the Haycock Creek allotment would improve distribution of livestock. This would reduce trailing and trampling damage when sheep trail into water.

Intensive monitoring in the Long Valley gully key area of the Six Lakes/Navajo Ridge Allotment would emphasize proper use in that area and determine if standards are adequate for recovery. This action would need to be in conjunction with watershed stabilization work on the gully system.

Proper use of Arizona willow populations on this allotment would meet the Arizona Willow Conservation Strategy and Agreement. By combining the Six Lakes allotment and the Navajo Ridge allotment, sheep months have been reduced resulting in less impact.

This alternative meets the management area direction and standards & guidelines of the Forest Plan. It will move the allotments toward desired future condition (LRMP).

CUMULATIVE EFFECTS

The cumulative effects area (CEA) for vegetation is the Cedar City Ranger District. This area was selected based on continuity of vegetation types throughout the District and the adjacency of the allotments.

The cumulative effects of past and present livestock grazing, road building, fire, chainings, recreation, special uses and timber harvest have influenced the vegetation resource on the Cedar City Ranger District. Timber sales within the CEA have opened up dense forested areas creating a temporary increase in range forage. This transitory range is not included in the suitable range for the affected allotments. New road construction has allowed livestock to distribute into areas that previously were not accessed easily. Future timber harvest activities within the spruce/fir and mixed conifer areas and associated road construction are likely to have the same effects. Past chainings have converted Pinyon/Juniper rangeland within the CEA to crested wheatgrass stands. This is considered suitable range. An increase in native plant species is expected within these chainings and may result in a decrease in forage production. There has been a heavy increase in recreation use resulting in increased trails, roads and dispersed camping. Recreation activities have occurred on suitable livestock range resulting in dual use and effects to the vegetation. Conflicts between grazing and recreation activities will likely increase in the future. Past fires average less than 8 acres in size and cumulatively have had a minimal effect on the vegetation. However, fire suppression has altered species composition and structure throughout the District.

The effects of implementing the proposed action, when combined with previously described effects of past, present and future actions within the CEA, will result in maintenance or slight increase in diversity of perennial plant species and productivity within the CEA.

NO ACTION

DIRECT/INDIRECT EFFECTS

In most cases, ecosystem health would improve as vegetation and litter cover would increase. Plant vigor and reproduction would improve overall. In upland shrub and pinyon-juniper communities response would be slight. Riparian areas would show improvement. Build-up of vegetation residue may result in some loss of vigor or reproduction capability over time.

CUMULATIVE EFFECTS

The cumulative effects area (CEA) for vegetation is the Cedar City Ranger District. This area was selected based on continuity of vegetation types throughout the District and the adjacency of the allotments.

The cumulative effects of past and present livestock grazing in addition to all other management activities occurring on the Cedar City Ranger District have resulted in impacts to the vegetation (refer to cumulative effects for Proposed Action). The No Action alternative when added to other past, present, and reasonably foreseeable future actions of the agency and others is expected to maintain or improve the vegetation diversity and production.

THREATENED, ENDANGERED, PROPOSED AND SENSITIVE PLANTS

This section describes the direct, indirect and cumulative effects of the Proposed Action and the No Action Alternative on Federally listed Threatened, Endangered and Proposed species as well as Sensitive plant species as designated by the Regional Forester of the Intermountain Region.

A more detailed description of the effects of the No Action and Proposed Action Alternatives can be found in the Grazing Literature Review for sensitive plants. The Biological Assessment for Threatened, Endangered and Proposed Species for Grazing Permit Issuance on the Dixie National Forest (BA) describes the effects of the Proposed Action on threatened, endangered or proposed (TEP) plants. The effects of the No Action Alternative on TEP plants can be found in the Grazing Literature Review.

The cumulative effects area (CEA) for the species discussed below is the Cedar City Ranger District. The rationale for this CEA is that grazing occurs on nearly all parts of the District, the allotments under analysis are spread over much of the District, these species have habitat or ranges over the whole district (sometimes scattered habitats), and the Cedar City Ranger District is somewhat geographically isolated from other mountains and forests such that the District could be considered a meta-populations for these species. Additional rationale for specific species is outlined where appropriate.

The past, present and future cumulative activities analysis for each species or group considered such activities as timber harvest, road building, recreation, prescribed fire, grazing, fuelwood cutting, fencing, water developments, Christmas tree sales and activities on private land. Past timber harvests have removed large trees, reduced tree densities, reduced large down logs and reduced snag densities. Increased road densities have also resulted from timber sale activity, which has encouraged travel by recreationists on off highway vehicles (OHV's) and mountain bikes. Fuelwood cutting has reduced numbers of snags and large down logs, especially along roadsides. Hunting is popular on the District as is fall color viewing at generally the same time of year. There are many trails on the District that are used very heavily during the summer months.

Future timber harvests on the District will principally treat beetle infestations in ponderosa pine and Engelmann spruce. These beetle infestations have been growing and the treatments are planned to slow these infestations as quickly as possible. The range improvements in the Proposed Action would generally improve riparian conditions by excluding livestock or improving distribution of livestock, out of the riparian areas.

THREATENED, ENDANGERED, AND PROPOSED PLANT SPECIES

The Ute Ladies' Tresses (Spiranthes diluvialis), a Federally Listed Threatened species, was historically found in riparian areas in Colorado, Utah, and Nevada. It is presently found in relatively undisturbed riparian areas in Colorado, in wetlands in northern Utah, and in the Colorado River drainage in Eastern Utah. It is not known to occur on the Cedar City Ranger District. Since no populations of this plant are known to occur on the District, this species will not be discussed further in this document.

SENSITIVE PLANTS

The following sensitive plant species do not occur on the Cedar City Ranger District, principally because they are endemic to areas outside the Cedar City Ranger District:

Dana Milkvetch (Astragalus henrimontanensis)
Table Cliff Milkvetch (Astragalus limnocharis var. tabulaeus)
Guard Milkvetch (Astragalus zionus vigilus)
Aquarius paintbrush (Castilleja aquariensis)
Yellow-white Catseye (Cryptantha ochroleuca)
Creeping Draba (Draba sobolifera)
Widstoe Buckwheat (Eriogonum aretioides)
Rabbit Valley Gilia (Gilia caespitosa)
Pine Valley Goldenweed (Haplopappus crispus)
Jones Goldenaster (Heterotheca jonesii)
Neeses' Peppergrass (Lepidium montanum var. neeseae)
Paria Breadroot (Pediomelum pariense)
Red Canyon Beardtongue (Penstemon bracteatus)
Little Penstemon (Penstemon parvus)
Pinyon Penstemon (Penstemon pinorum)
Angell Cinquefoil (Potentilla angelliae)
Podunk Groundsel (Senecio malmstenii)
Rock Tansy (Sphaeromeria capitata)
Bicknell Thelesperma (Thelesperma subnudum var. alpinum)

The Navajo Lake Milkvetch (Astragalus limnocharis var. limnocharis), Reveal Paintbrush (Castilleja parvula var. revalii), Cedar Breaks Biscuitroot (Cymopterus minimus), Zion Jamesia (Jamesia americana zionus) and Maguire Campion (Silene petersonii) grow only on steep exposed soil such as Wasatch Limestone or open calcareous limestone or igneous gravels where livestock do not graze. Grazing would have no effects to these species, therefore, they will not be analyzed further in this document.

PROPOSED ACTION

Paradox Moonwort (Botrychium paradoxum)

DIRECT/INDIRECT EFFECTS

Paradox moonwort is a small rare fern that is found in diverse habitats that include wet meadows and open parklands. Although no plants have yet been observed in the allotments under analysis, suitable habitat may exist. The effects of grazing on the paradox moonwort is not well understood. With the Proposed Action some plants may be affected by grazing if they occur.

Pond developments and reduction of livestock numbers in the Haycock Creek Allotment would allow improved distribution and improvements in some plant communities would result. Improved grazing to avoid aggravating the gully in the Six Lakes/Navajo Ridge Allotment would also improve potential habitat for the moonwort.

If there are any Paradox moonworts on these allotments, they would benefit from the improvement in riparian health along streams from the Proposed Action, but may continue to be affected by livestock grazing in wet meadows.

CUMULATIVE EFFECTS

Paradox moonwort habitat would improve with proper use grazing District-wide. Past grazing has deteriorated some riparian areas, but some have shown great improvements in the past ten years. With proper use these areas would continue to improve. The Proposed Action, therefore, would be cumulative with past utilization above standards and guidelines these areas, but would move toward improved wet meadow and riparian habitats.

Tushar Paintbrush (Castilleja parvula var. parvula)

DIRECT/INDIRECT EFFECTS

There are no documented occurrences of Tushar paintbrush in these allotments. Because proper use standards would be implemented, this alternative would not likely adversely affect population viability.

CUMULATIVE EFFECTS

Future activities such as road and trail building, timber sales and prescribed burns would go through the Biological Evaluation process and would be planned to avoid disturbance to these plants. Grazing District-wide would affect habitat for these plants except in areas where they typically do not graze due to access or steep ground, but overall improved conditions District-wide are expected.

Arizona Willow (Salix arizonica)

DIRECT/INDIRECT EFFECTS

All documented locations of the Arizona willow have been addressed in the Arizona Willow Conservation Strategy and Agreement. During the 1994 and 1995 field season, protection measures described in the Agreement were implemented and will continue into the future. Therefore, the Proposed Action, which

includes the terms and conditions of the permits to meet the Strategy and Agreement, would maintain viable populations of Arizona Willow and therefore would meet Forest Service NFMA requirements.

CUMULATIVE EFFECTS

Past grazing has affected the Arizona willow. Other activities may have affected Arizona willow, since its widespread occurrence on the District was only recently discovered (1994). Grazing at proper use would generally improve riparian areas District-wide, which would benefit Arizona willows. Future projects would have plant surveys and be planned to avoid adverse effects to the willows. Therefore, cumulative effects of the Proposed Action would tend to moderate past actions.

NO ACTION

Paradox moonwort (Botrychium paradoxum)

DIRECT/INDIRECT EFFECTS

Implementation of the No Action Alternative would be expected to improve and possibly increase habitat for the paradox moonwort, particularly where current conditions are unsatisfactory. Habitat in satisfactory condition may improve if willows have been previously lacking. Therefore, implementation of the No Action Alternative benefit the moonwort and would meet Forest Service NFMA requirements by maintaining habitat for paradox moonwort.

CUMULATIVE EFFECTS

Grazing at proper use over the remainder of the District would improve overall conditions for the Paradox moonwort. Therefore, implementation of the the No Action Alternative would increase the potential habitat of the paradox moonwort across the District overall.

Tushar Paintbrush (Castilleja parvula var. parvula)

DIRECT/INDIRECT EFFECTS

There are no documented occurrences of Tushar paintbrush in these allotments. The No Action Alternative would have no effects to the Tushar Paintbrush. No trampling, grazing or other direct effects would occur. This would meet Forest Service NFMA requirements to maintain viable populations.

CUMULATIVE EFFECTS

The cumulative effects of the No Action Alternative is similar to the Proposed Action except that in the non-grazed areas more vegetation would be present in the long term.

Arizona Willow (Salix arizonica)

DIRECT/INDIRECT EFFECTS

The No Action alternative benefit the Arizona willow and would comply with maintaining viable populations of Arizona willow as outlined in the Arizona Willow Conservation Strategy and Agreement. Therefore, the No Action

Alternative would meet Forest Plan standards and guidelines and would meet Forest Service NFMA requirements.

CUMULATIVE EFFECTS

The cumulative effects of the No Action Alternative would be similar to the Proposed Action except that the areas where no grazing would occur would have larger and more willows. Therefore, the cumulative effects would overall be beneficial to the willow, meeting NFMA requirements and the Arizona Willow Conservation Strategy and Agreement.

WILDLIFE

INTRODUCTION

Refer to Chapter 3 for site specific information regarding locations of suitable habitat, critical habitat as defined by the UDWR and Forest Service, and documented occurrences of species listed below. Species groups such as Neotropical Migratory Birds and Passerines are assumed to be present in all allotments and all pastures since their habitats may vary depending on species.

This section describes the effects of the Proposed Action and No Action Alternatives on wildlife resources. For a more detailed description of the effects of these alternatives on vegetation and hydrology (which comprise wildlife habitat components for many of these species) and on wildlife, see the Grazing Literature Review. The effects of the Proposed Action on Federally Listed Threatened, Endangered and Proposed species are described in more detail in the Biological Assessment for Threatened, Endangered and Proposed Species for Grazing Permit Issuances on the Dixie National Forest, unless otherwise noted.

Analysis of wildlife habitats for this process is focused on critical wildlife habitats as defined by Utah Division of Wildlife Resources and the Forest Service, and key wildlife habitat components for the respective species that can be influenced by grazing.

Although the Brian Head Mountainsnail (Oreohelix parowanensis) occurs on the Haycock Mountain/Brian Head Allotment, the occupied habitat is excluded from grazing as part of the Terms and Conditions of the grazing permit. Therefore no analysis of effects is necessary and there will be no further discussion of this species in this document.

Although no southwestern willow flycatchers or Mexican spotted owls have been documented on the Cedar City Ranger District, they are discussed here using habitat as a surrogate (that is, treating them as though they occur) as agreed upon with the U.S. Fish and Wildlife Service.

Generally, sheep grazing affects grasses and forbs on uplands with lesser effects to shrubs and riparian zones. The following analysis of each species is based on the determination that with proper use and the No Action Alternative grasses and forbs on uplands would improve where past grazing has been exceeding Forest Plan Standards and Guidelines and/or conditions are

unsatisfactory. The No Action Alternative would leave more grasses and forbs, and recovery of unsatisfactory areas would be faster than with the Proposed Action. The same would be true with riparian areas. On uplands and riparian areas in satisfactory condition, habitats would be maintained with both alternatives, however, the No Action Alternative would result in more vegetation remaining, especially forbs on the uplands.

The range improvements proposed (fencing, ponds, pipeline) would generally improve riparian areas by either excluding livestock or encouraging them to graze away from the riparian areas. (See the Vegetation and Hydrology sections of this document.) Improved riparian areas would benefit many species of wildlife. Construction of the improvements would cause short term disturbances to wildlife. Following mitigation measures described in Chapter 2 would ensure that disturbances would not adversely affect the northern goshawk.

The cumulative effects area (CEA) for the species discussed below is the Cedar City Ranger District. The rationale for this CEA is that grazing occurs on nearly all parts of the District, the allotments under analysis are spread over much of the District, these species have habitat or ranges over the whole district (sometimes scattered habitats), and the Cedar City Ranger District is somewhat geographically isolated from other mountains and forests such that the District could be considered a meta-populations for these species. Additional rationale for specific species or groups is outlined where appropriate.

The past, present and future cumulative activities analysis for each species or group considered such activities as timber harvest, road building, recreation, prescribed fire, grazing, fuelwood cutting, fencing, water developments, Christmas tree sales and activities on private land. Past timber harvests removed large trees, reduced tree densities, reduced large down logs and have reduced snag densities. Increased road densities have also resulted from timber sale activity, which has encouraged travel by recreationists on off highway vehicles (OHV's) and mountain bikes. Fuelwood cutting has reduced numbers of snags and large down logs, especially along roadsides. Hunting is popular on the District as is fall color viewing at generally the same time of year. There are many trails on the District that are used very heavily during the summer months. Some of these activities have invariably or inadvertently affected wildlife habitats or displaced wildlife, or caused reproductive failure at some time.

Future timber harvests on the District will principally treat beetle infestations in ponderosa pine and Engelmann spruce. These beetle infestations have been growing and the treatments are planned to slow these infestations as quickly as possible. In some areas conditions may not become the desired condition either from salvage and treatment or mortality of trees. The range improvements in the Proposed Action would generally improve riparian conditions by excluding livestock or improving distribution of livestock, out of the riparian areas.

THREATENED, ENDANGERED, AND PROPOSED WILDLIFE SPECIES

PROPOSED ACTION

Peregrine Falcon (Falcon peregrinus anatum)

DIRECT/INDIRECT EFFECTS

This alternative would have no effects to nesting habitat in the Six Lakes/Navajo Ridge Allotment. Proper use grazing would maintain foraging habitat in riparian and open parklands in satisfactory condition thereby maintaining potential available prey.

The Proposed Action would maintain viability of peregrines, meet Forest Service NFMA requirements, and meet the Recovery Plan. The LRMP goal to manage peregrine falcon habitat to maintain or enhance their status would be met with the Proposed Action, thereby meeting NFMA requirements.

CUMULATIVE EFFECTS

Proper use District-wide could improve riparian areas such that there may be an increase in overall prey availability for peregrine falcons. Adjacent private lands are expected to continue grazing at present levels, therefore, riparian areas on these lands would expect to remain in the existing condition. The LRMP goal to manage peregrine falcon habitat to maintain or enhance their status would be met with the Proposed Action.

Mexican Spotted Owl (Strix occidentalis lucida)

DIRECT/INDIRECT EFFECTS

The direct and indirect effects of livestock grazing are described in the Programmatic Biological Assessment of the Effects of Grazing on the Mexican Spotted Owl for Region 4 Southern Utah Forests: Dixie, Fishlake, and Manti-LaSal National Forests (Grandison 1994) and is incorporated here by reference (40 CFR 1502.21). There are no designated critical habitat areas on the Dixie National Forest for the Mexican Spotted Owl. The Proposed Action, including proposed improvements, would comply with the Mitigation Measures in this shrubs with the Recovery Plan for the Mexican Spotted Owl. Therefore, Mexican spotted owl habitat would be maintained for viable populations, meeting Forest Service NFMA requirements.

CUMULATIVE EFFECTS

Timber harvests have altered wintering and dispersal habitat for the Mexican spotted owl but these activities have maintained habitat for the most part. Future timber harvests would reduce tree densities and treat beetle infestations in ponderosa pine and spruce. The Biological Assessment process and appropriate consultations would take place to assure the Mexican spotted owl is adequately addressed. Past grazing has reduced grasses, forbs and shrubs that would provide habitat for prey for the owls. Proper use grazing throughout the District in the future would generally have a beneficial effect since better livestock distribution would be attained. Habitat would be

maintained to provide viable populations of Mexican Spotted owls, thereby meeting the Recovery Plan, Forest Service NFMA requirements and the LRMP.

Southwestern Willow Flycatcher (Empidonax traillii extimus)

DIRECT/INDIRECT EFFECTS

Very little is known about this species' habitat and occurrence on the Dixie National Forest. It is not known whether the willow flycatcher that has been documented is the southwestern willow flycatcher. Documented occurrences of the willow flycatcher on private land within the Dixie National Forest is in the Panguitch Lake and Pole Hollow areas. Potential habitat may exist in perennial drainages in these areas.

Grazing with proper use would increase willows in localized areas and potentially suitable habitat for willow flycatchers in areas that are presently lacking willows or with low numbers of willows. However, since sheep grazing generally impacts upland areas, improvement in riparian areas would be expected to be minimal and occur in a few localized areas.

The proposed pond developments in Haycock Creek Allotment would not affect willow flycatchers or their habitats. No willows would be expected to grow along these ponds because use would be used for watering livestock.

Grazing, even at proper use levels, would promote presence of brown-headed cowbirds which are known to parasitize willow flycatchers, decreasing reproductive success. Brown-headed cowbirds lay eggs in other bird's nests. The hatchling cowbirds are larger and more aggressive than the host's young and either obtain all the food from the adult host or push the host's young out of the nest.

Since riparian habitats would be maintained or improved with proper use, the LRMP goal to maintain or enhance the terrestrial habitat for all wildlife species that presently occur on the Forest would be met.

CUMULATIVE EFFECTS

Proper use grazing District-wide could increase willow habitat and improve habitat for willow flycatcher. With improved habitat conditions, more cover from parasitism would be present, however with continued grazing on adjacent land, brown-headed cowbird parasitism would still occur. If grazing on private land is high, and willows are very low or lacking, habitat for willow flycatchers could be fragmented along a streamcourse, which could create smaller patches on the Forest which may not be suitable for flycatchers. More vegetative edge would exist for cowbirds to find flycatcher nests easily. In general, lands within the Dixie National Forest boundary are grazed more heavily than on the Forest.

Because so little is known about the taxonomy, abundance and distribution of willow flycatchers on the Dixie National Forest, cumulative effects of the Proposed Action with proper use grazing is unknown. However, improved habitat conditions would be moving toward the desired riparian habitat conditions for maintaining habitat for willow flycatchers with the Proposed Action.

NO ACTION

Peregrine Falcon (Falco peregrinus anatum)

DIRECT/INDIRECT EFFECTS

Riparian areas and open parklands that are maintained or improved could slightly increase habitat for peregrine falcon prey, which would benefit peregrines. Peregrine falcon population viability would be maintained, meeting Forest Service NFMA requirements.

CUMULATIVE EFFECTS

No grazing, combined with proper-use grazing District-wide, would improve riparian areas providing an increase in overall prey availability for peregrine falcons. Continued grazing on adjacent private land would maintain existing conditions in their respective riparian areas. The LRMP goal to manage peregrine falcon habitat to maintain or enhance their status would be met with the Proposed Action.

Mexican Spotted Owl (Strix occidentalis lucida)

DIRECT/INDIRECT EFFECTS

The No Action Alternative would increase foods used by the owl's prey species, by allowing the composition and quantity of herbaceous vegetation, and seed produced by both herbaceous and woody vegetation, to increase (Grandison 1994). No grazing would comply with the Recovery Plan for the Mexican Spotted Owl. Therefore, Mexican spotted owl habitat would be maintained for viable populations, meeting Forest Service NFMA requirements.

CUMULATIVE EFFECTS

The effects of the No Action Alternative would be similar to the Proposed Action except some riparian areas would improve in localized areas faster than with the Proposed Action. Uplands in the non-grazed areas would have more vegetative biomass than the Proposed Action. No grazing combined with other activities would meet the Recovery Plan, Forest Plan Standards and guidelines and Forest Service NFMA requirements.

Southwestern Willow Flycatcher (Empidonax traillii extimus)

DIRECT/INDIRECT EFFECTS

No grazing would improve riparian areas and increase willow habitat in localized areas. This could increase suitable habitat for willow flycatchers. This would occur faster than with proper use. However, since sheep grazing generally impacts upland areas more than riparian areas, riparian areas would be expected to improve in a few localized areas.

No grazing would not encourage presence of brown-headed cowbirds which are known to parasitize willow flycatchers. Reproductive success of brown-headed cowbirds would be expected to decline. However, since grazing would continue on adjacent private and Forest land, brown-headed cowbirds would still be present and parasitism would still occur.

Since riparian habitats would be maintained or improved with no grazing, the LRMP goal to maintain or enhance the terrestrial habitat for all wildlife species that presently occur on the Forest would be met.

CUMULATIVE EFFECTS

Past grazing has reduced the amount and condition of willow habitats in some areas on the Cedar City Ranger District and on adjacent lands. The range of willow flycatchers has diminished where streamside habitat has been destroyed. Proper use grazing proposed District-wide would increase willow habitat for willow flycatcher. With improved habitat conditions, more cover from brown-headed cowbird parasitism would be present. However, with continued grazing on adjacent lands, brown-headed cowbird parasitism would still occur. Because so little is known about the abundance and distribution of willow flycatchers on the Cedar City Ranger District, cumulative effects of the Proposed Action with proper use grazing is unknown. However, improved habitat conditions would be moving toward the desired condition for maintaining habitat for willow flycatchers.

SENSITIVE WILDLIFE SPECIES

PROPOSED ACTION

Northern Goshawk (Accipiter gentilis)

DIRECT/INDIRECT EFFECTS

There would be no effects to the most important habitat components for northern goshawk nesting. Grazing at proper use would maintain suitable grasses, forbs and shrubs for prey species and thereby maintain foraging habitat.

The proposed pond developments in Haycock Creek Allotment would not affect northern goshawks (see proper use regarding timing of construction activities) or their habitats. No change in goshawk foraging would be expected from construction or use of these ponds.

Therefore, there would be no adverse effects on goshawks or their viability, meeting Forest Service NFMA requirements, the Management Recommendations for Northern Goshawk in the Southwestern United States and LRMP goals to maintain habitat for all existing wildlife species.

CUMULATIVE EFFECTS

Goshawk nesting or foraging has been found on nearly all parts of the District where surveys have been conducted.

Past fuelwood cutting has reduced snag habitat on the District, particularly along roadsides. Timber sales and spruce and pine beetle infestations have reduced the number of large trees and reduced canopy closure. Future timber sales will follow the intent of the Management Recommendations for Northern Goshawk in the Southwestern United States as much as possible but because of the beetle infestation, these activities would reduce numbers of large trees, snags and down logs and increase grasses, forbs and shrubs. Timber sales and prescribed fires can reduce grasses and forbs immediately after implementation, but these activities generally increase abundance of grasses and forbs when

they revegetate. Therefore, these activities on the district, when combined with the Proposed Action would maintain this habitat component for goshawks and would meet Forest Service NFMA requirements.

Spotted Bat (Euderma maculatum)
and Western big-eared bat (Plecotus townsendii)

DIRECT/INDIRECT EFFECTS

The limiting factors for these bats are hibernacula, roosts and maternity sites, which are not affected by grazing. Grazing would remove vegetation available to support insects on which bats prey. However, grazing at proper use would not be expected to affect insect populations enough to affect bat foraging or bat populations. Maintaining riparian areas that are in satisfactory condition would not be expected to change bat foraging habitat measurably. Improvement of riparian areas in unsatisfactory condition would be expected to improve foraging (insects). The proposed pond developments in Haycock Creek Allotment would provide additional water sources for bats during their foraging forays. This would benefit bats. Therefore, population viability would be maintained for these bats, meeting Forest Service NFMA requirements.

CUMULATIVE EFFECTS

Past grazing has degraded riparian areas on the District and possibly decreased water availability for bats. Timber sales and woodcutting have reduced snags for bat roosting. Timber sales and fire would provide more grasses and forbs than prior to the activity. Other water developments would increase water availability, which would be beneficial for bats. Therefore, the Proposed Action would maintain habitat for for viability of these bats, thereby meeting Forest Service NFMA requirements.

Flammulated Owl (Otus flammeolus)

DIRECT/INDIRECT EFFECTS

The most limiting habitat component for flammulated owls, snags for nesting, would not be affected by the Proposed Action. Vegetation that supports insects on which flammulated owls prey would be affected by grazing. Flammulated owls nest and fledge young relatively early (April through July), mostly prior to sheep grazing. Therefore, grazing would have little effects on this important stage of their life cycle. Therefore, viable populations of flammulated owls would be maintained, meeting Forest Service NFMA requirements.

CUMULATIVE EFFECTS

Timber harvests and fuelwood cutting have reduced snags these owls use for nesting. Future harvests will also decrease snags. Grazing at proper use District-wide would affect vegetation for insects and therefore flammulated owl prey. Improvements in riparian areas would increase insect numbers overall and maintain viable populations of flammulated owls, meeting NFMA requirements.

NO ACTION

Northern Goshawk (Accipiter gentilis)

DIRECT/INDIRECT EFFECTS

The large tree, snag and down log habitat components would not be affected with this alternative. Foraging habitats, including grasses and forbs for prey species would be improved or maintained, thereby providing potential increased prey base.

Therefore, the No Action Alternative would maintain goshawk viability, meeting Forest Service NFMA requirements, the Management Recommendations for the Northern Goshawk in the Southwestern United States and LRMP goals to maintain habitat for all existing wildlife species.

CUMULATIVE EFFECTS

The cumulative effects of the No Action Alternative would be the same as described for the Proposed Action except more vegetation would be present in the non-grazed, providing habitat for goshawk prey. Therefore, the cumulative effects would maintain goshawk habitat.

Spotted Bat (Euderma maculatum)
and Western big-eared bat (Plecotus townsendii)

DIRECT/INDIRECT EFFECTS

With the No Action Alternative vegetation that supports insects on which bats prey would increase. Because the limiting factors for bats are hibernacula, roosts, and maternity sites, increased prey biomass would not be expected to have measurable effects to bat populations. Therefore, the No Action Alternative would maintain spotted and western big-eared bat population viability, which meets Forest Service NFMA requirements.

CUMULATIVE EFFECTS

The cumulative effects of the No Action Alternative would be the same as described in the Proposed Action except that more vegetation would be present in the non-grazed allotments in the long term, providing improved habitat for bat prey (insects). Therefore, the No Action Alternative combined with other activities would maintain habitat for viability of spotted and western big-eared bats, thereby meeting Forest Service NFMA requirements.

Flammulated Owl (Otus flammeolus)

DIRECT/INDIRECT EFFECTS

Snags used for nesting would not be affected with this alternative. Vegetation that supports insects on which flammulated owls prey would be increased more than with the Proposed Action, improving habitat for the owl. Viable populations of flammulated owls would be maintained, meeting Forest Service NFMA requirements.

CUMULATIVE EFFECTS

The cumulative effects of the No Action Alternative would be the same as described in the Proposed Action except that improvement would be more rapid and more vegetation would be present in the non-grazed areas in the long term

than with the Proposed Action. This would provide improved habitat for flammulated owl prey (insects). Viable populations of flammulated owls would be maintained, meeting NFMA requirements.

WILDLIFE MANAGEMENT INDICATOR SPECIES

PROPOSED ACTION

Mule Deer (Odocoileus hemionus)
and Rocky Mountain Elk (Cervus elaphus nelsoni)

DIRECT/INDIRECT EFFECTS

Grazing with proper use would maintain shrubs, grasses and forbs for forage and cover to meet Forest Plan standards and guidelines on critical deer and elk ranges (see Chapter 3). The reseeding or vegetation treatments would continue to provide forage for livestock, deer and elk with the Proposed Action.

The proposed pond developments in Haycock Creek Allotment would provide improved water distribution for mule deer and elk, improving habitat effectiveness.

CUMULATIVE EFFECTS

Although the summer and winter ranges and calving and fawning areas may be for different herds, the cumulative effects area provides a wide range of habitats for elk and deer.

Past grazing has degraded some riparian areas which affects calving and fawning habitats. Past timber harvests have reduced cover and increased forage for big game. Road densities have increased, reducing habitat effectiveness. Added water developments have increased habitat effectiveness. Proper use District-wide would improve forage on uplands and riparian areas where conditions are less than desired. Future activities would follow Forest Plan standards and guidelines regarding road density, forage and cover for big game. The improved conditions with the Proposed Action would tend to ameliorate past actions that reduce habitat effectiveness and enhance actions that increase habitat effectiveness.

Wild Turkey

DIRECT/INDIRECT EFFECTS

The subspecies that occurs on these allotments is the Merriam's Turkey (Meleagris gallopavo merriami). No critical or "key" habitats for turkeys have been identified by the Utah Division of Wildlife Resources or the Forest Service. Inadvertent trampling of nest or eggs could occur on pastures grazed during the nesting season (April 15 through July 1). With proper use, vegetation for forage and/or supporting insects for forage would improve and shrubs would provide wild turkey foraging and nesting habitats. Ponds would not have measurable effects to overall habitat effectiveness for turkeys since they are proposed where turkey use is low. Therefore, the Proposed Action would maintain viable populations of wild turkey.

CUMULATIVE EFFECTS

Timber sales have reduced the number of large trees used for turkey roosts. Timber harvest and prescribed burns have improved grasses and forbs for foraging. Grazing District-wide reduces vegetation, but proper use grazing would improve conditions District-wide. The overall effect would be a mosaic where there are increases and decreases of vegetation and forage and would tend to ameliorate past adverse effects to turkeys. Therefore, viable populations of turkeys would be maintained, meeting Forest Service NFMA requirements.

Yellow-breasted chat (Icteria virens) - Riparian Habitat Conditions.

DIRECT/INDIRECT EFFECTS

Potential suitable habitat in these allotments would only be expected in the low elevation riparian areas. If yellow-breasted chats occur in any of these allotments, grazing during the nesting season (spring and early summer) could cause inadvertent bumping of nests or young to the ground. Proper use grazing would increase riparian habitat conditions outlined in the Forest plan amendment in localized areas. Brown-headed cowbirds would continue to be present and parasitize chats.

The proposed pond developments in Haycock Creek Allotment would not affect yellow-breasted chats or their habitats because thick shrubby habitat would not be expected to grow along the pond.

The Proposed Action would meet Forest Service NFMA requirements and LRMP standards and guidelines by moving toward the desired riparian conditions and moving toward maintaining habitat for this species.

CUMULATIVE EFFECTS

Knowledge of the distribution of suitable habitat (other than high versus low elevation shrubby riparian habitat) and occupied habitat for this species on the Dixie National Forest is limited.

Proper use grazing proposed District-wide could increase shrub habitat and improve habitat for the yellow-breasted chat. With improved habitat conditions, more cover from parasitism would be present. However, with continued grazing on adjacent private lands, brown-headed cowbird parasitism would still occur. If grazing on private land is high and willows are very low or lacking, habitat for yellow-breasted chats would be fragmented along a stream course, which may create smaller patches on Forest land. This may not be suitable for chats and would provide more vegetative edge for cowbirds to find chat nests easily. In general, private lands within the Dixie National Forest boundary are grazed more heavily than on the Forest.

Improved riparian habitat conditions would be moving toward improved Forest Plan riparian habitat conditions, and would improve habitat conditions for the yellow-breasted chat.

NO ACTION

Mule Deer (Odocoileus hemionus)
and Rocky Mountain Elk (Cervus elaphus nelsoni)

DIRECT/INDIRECT EFFECTS

The No Action Alternative would increase shrubs, grasses and particularly forbs available for use by deer and elk, but grasses may become less palatable in the long term. The critical elk and deer ranges would acquire greater vegetative biomass in grasses, forbs and shrubs. Riparian areas would be expected to improve in localized areas, thereby providing improved elk and deer habitat in general.

The "reseedings" or vegetation treatments would provide increased forage for livestock and mule deer with the No Action Alternative.

CUMULATIVE EFFECTS

The cumulative effects of the No Action Alternative would be similar to the Proposed Action except that there would be more vegetation overall and the vegetation would increase faster than with proper use. Overall, this would be favorable to big game.

Wild Turkey

DIRECT/INDIRECT EFFECTS

With no grazing, vegetation for forage and supporting insects used for forage would increase. Therefore, the Proposed Action would be beneficial to maintaining viable populations of wild turkey, meeting Forest Service NFMA requirements and Forest Plan standards and guidelines.

CUMULATIVE EFFECTS

The cumulative effects of the No Action Alternative are similar to the Proposed Action except that there would be more vegetation providing foraging and cover for turkeys and it would be attained more quickly than with proper use. The overall effect would improve habitat and maintain viable populations of turkeys, meeting Forest Service NFMA requirements.

Yellow-breasted chat (Icteria virens) - Riparian Habitat Conditions.

DIRECT/INDIRECT EFFECTS

Any low elevation riparian areas which are presently in unsatisfactory condition, would be expected to improve, thereby providing improved riparian habitat conditions and potential habitat for the yellow-breasted chat habitat. Since sheep grazing generally affects uplands more than riparian areas, these changes would occur only in localized areas. The No Action Alternative could slightly reduce brown-headed cowbird occurrences which could improve nesting success of yellow-breasted chats. The No Action Alternative would therefore have potential habitat for increased populations of yellow-breasted chat, meeting Forest Service NFMA requirements and LRMP standards and guidelines.

CUMULATIVE EFFECTS

Proper use grazing proposed District-wide would increase shrub habitat, and improve habitat for the yellow-breasted chat. This would move toward more continuous vegetation, increased grasses, forbs and litter, more areas in mid-to-late seral, and shrubs with canopies extending to or near the ground. With improved habitat conditions, more cover from parasitism would be present, but with continued grazing on adjacent private lands, brown-headed cowbird parasitism would still occur. Cumulative effects of the No Action Alternative combined with grazing elsewhere on the District would be moving toward improved riparian habitat conditions, which would support species dependent upon both alpine and lower elevation riparian areas (including the yellow-breasted chat).

OTHER SPECIES OF CONCERN

PROPOSED ACTION

Passerine Birds, including Neotropical Migratory Birds

DIRECT/INDIRECT EFFECTS

Sheep grazing during the nesting season could inadvertently knock nests or young to the ground. Proper use grazing would improve or maintain food distribution and abundance (seeds, flowers) and cover (shrubs or shrubby aspen trees, grasses and forbs) for these birds. In general sheep grazing would affect grasses and forbs more than shrubs and trees and would affect uplands more than riparian areas. Brown-headed cowbirds would be present and would parasitize those species that are vulnerable.

The proposed pond developments in Haycock Creek Allotment would provide improved water distribution for these birds.

CUMULATIVE EFFECTS

Proper use grazing proposed District-wide could increase amounts and quality of upland and riparian habitats thereby providing increased food and cover for these birds. Brown-headed cowbird presence would be expected to continue to parasitize birds, particularly those associated with riparian areas. With improved habitat conditions, more cover from parasitism would be present, however, with continued grazing on adjacent lands brown-headed cowbird parasitism would still occur. Timber sales have reduced habitat for birds needing closed canopy forests and have increased habitats for those needing openings. Openings, and fragmentation, have increased edges and openings where brown-headed cowbirds could parasitize nesting birds. Future vegetation management activities would generally decrease trees and increase shrubs, grasses and forbs in the short term. The overall effect would be increased seral stages in different plant communities which can increase bird species richness.

Bats

DIRECT/INDIRECT EFFECTS

The direct and indirect effects of the Proposed Action on these bats is identical to those described for spotted and western big-eared bats under the

Proposed Action because their foods are much the same (insects) and limiting factors to their populations are also very similar (hibernacula, roosts and maternity sites). Therefore, grazing at proper use would increase foraging slightly and would maintain viable populations of these bats.

CUMULATIVE EFFECTS

Timber harvests and fuelwood cutting have reduced snags for bat roosts. Grasses, shrubs and forbs have increased from timber harvests and prescribed burns. Future vegetation activities would provide a mosaic of plant community seral stages. Therefore, grazing at proper use District-wide would be expected to have little effects on viable populations of these bats.

NO ACTION

Passerine Birds, including Neotropical Migratory Birds

DIRECT/INDIRECT EFFECTS

No grazing would improve food distribution and abundance (seeds, flowers) and cover (grasses and forbs) for passerine and neotropical birds in uplands and riparian areas. This would occur faster and result in more vegetation than with the Proposed Action. Adjacent land that is grazed would still promote cowbird occurrences on the District and cowbird parasitism would still occur.

The No Action Alternative would therefore improve habitat for neotropical migratory birds, meeting Forest Service NFMA requirements and LRMP standards and guidelines.

CUMULATIVE EFFECTS

The effects of the No Action Alternative would be similar to the Proposed Action except much more vegetative biomass would present than with proper use. The cumulative effects would be beneficial to passerine and neotropical migratory birds.

Bats

DIRECT/INDIRECT EFFECTS

The direct and indirect effects of the No Action Alternative on these bats is identical to those described for spotted and western big-eared bats under the No Action Alternative because their foods are much the same (insects) and the limiting factors to their populations are also very similar (hibernacula, roosts and maternity sites). Therefore, no grazing would maintain viable populations of these bats.

CUMULATIVE EFFECTS

The cumulative effects of the No Action Alternative for these bats is identical to those described for spotted and western big-eared bats under the No Action Alternative. Therefore, no grazing combined with grazing at proper use levels District-wide would be expected to maintain viable populations of these bats.

SOILS

PROPOSED ACTION

DIRECT/INDIRECT EFFECTS

During the analysis of the Black Mountain, Dandelion Knoll, Deep Creek, Deer Valley, Haycock Creek, Haycock Mountain/Brian Head, Sage Valley/Horse Valley and Six Lakes-Navajo Ridge sheep allotments it was found that, on some portions of some of these allotments, livestock grazing was causing impacts to streambanks, riparian areas and/or soil productivity beyond LRMP standards and guidelines (see Chapter 3, and NFMA analysis notes and Riparian Inventory Reports in Project File).

Based on the findings of the analysis, and on the latest research concerning impacts associated with livestock grazing, additional proper use guidelines were identified. Proper use criterion prescribed under this alternative will provide for protection of the soil resource in all pastures of the allotments. Grazing at proper use by the livestock numbers, season of use, and grazing system proposed for each allotment should ensure that any adverse impacts caused by livestock grazing on uplands and in riparian areas are within acceptable thresholds established in the Regional Soil Quality Guidelines for maintenance of long-term soil productivity and hydrologic function.

In addition to the proper use guidelines, pond developments on the Haycock Creek allotment has been proposed to help provide better livestock distribution and provide for proper forage utilization (See Chapter 2).

Implementation of the proposed improvements and the proper use criterion should result in moving these allotments towards the Desired Future Condition described for the soil resource in the Dixie NF LRMP.

CUMULATIVE EFFECTS

A multitude of multiple use management actions occur on these lands. These include such things as timber sales; watershed rehabilitation projects; wildlife and fisheries habitat improvement projects; recreational developments such as campgrounds, trails for hiking, biking, ATV's, skiing; mining and oil and gas development; utility corridors; roads; fire control; range improvement projects such as chainings and water developments; firewood and post and pole sales, and Christmas tree sales.

The cumulative impacts of livestock grazing in addition to all the other management activities occurring on the cattle allotments of the Cedar City RD are well within the threshold of having at least 85 percent of the land with soil in satisfactory condition. Detrimental soil disturbance associated with grazing occurs on less than 1 percent of the land area.

Aggressive fire control since the turn of the century has resulted in some upland area vegetative cover types progressing to mature/decadent stages of succession. Areas with these decadent cover types now have reduced ground cover compared to pre-settlement times which is resulting in reduced soil protection and increased runoff and erosion. Without treatment, the ground cover threshold for soil protection will be reached which could result in exceeding the soil loss tolerance thresholds for soil protection.

A foreseeable future management activity for the CEA is an aggressive prescribed fire program to move these decadent cover types towards the desired future condition of having various successional stages which would improve watershed conditions.

NO ACTION

DIRECT/INDIRECT EFFECTS

Ground cover (vegetation and litter) would increase over current conditions, particularly in riparian areas. With no livestock grazing there would be less soil displacement, compaction and puddling effects).

CUMULATIVE EFFECTS

Aggressive fire control since the turn of the century has resulted in some upland area vegetative cover types progressing to mature/decadent stages of succession. Areas with these decadent cover types now have reduced ground cover compared to pre-settlement times which is resulting in reduced soil protection and increased runoff and erosion. Without treatment, the ground cover threshold for soil protection will be reached which could result in exceeding the soil loss tolerance thresholds for soil protection.

A foreseeable future management activity for the CEA is an aggressive prescribed fire program to move these decadent cover types towards the desired future condition of having various successional stages which would improve watershed conditions.

HYDROLOGY AND WATER QUALITY

PROPOSED ACTION

DIRECT/INDIRECT EFFECTS

Proper use criterion prescribed under this alternative will provide for protection of the hydrology and water quality in all pastures of the Black Mountain, Dandelion Knoll, Deep Creek, Deer Valley, Haycock Creek, Haycock Mountain/Brian Head, Sage Valley/Horse Valley, and Six Lakes/Navajo Ridge Sheep allotments. Grazing at proper use by the livestock numbers, season of use, and grazing system proposed for each allotment should ensure that any impacts caused by livestock grazing on uplands and in riparian areas are within acceptable limits.

The proper use criterion are the Intermountain Region's recommended Best Management Practices to maintain riparian areas in desired condition (mid to late seral greenline), and improve riparian areas not in desired condition (very early to early seral greenline).

Pond developments in the Haycock Creek allotment would result in better distribution of livestock which would reduce compaction associated with trailing and trampling damage on uplands.

Making the active gully area in the Long Valley pasture of the Six Lakes/Navajo Ridge Allotment a key area for future utilization monitoring would put emphasis on proper use in that area and help recovery and stabilization of the gully system.

This alternative would not contribute to the further impairment of 303(d) listed waters except for Panguitch Lake where Haycock Creek allotment sheep have direct access below the high water mark. Panguitch Lake does not meet State Water Quality Standards for nutrients. Sheep water directly on Panguitch Lake on a limited basis near the end of the grazing season. Panguitch Lake Watershed #16030001 is on the Utah High Priority Watersheds for Nonpoint Source Pollution Control for nutrients and total suspended solids. Nutrients coming from the watershed from grazing would be within acceptable limits due to maintaining or moving towards desired riparian conditions. Because infiltration, runoff, and erosion relationships are expected to continue at or near existing rates, total suspended solids are expected to continue at or near existing rates.

By maintaining or moving towards desired conditions, this Proposed Action meets the management area direction of the LRMP. Since current erosion and sedimentation rates would continue, due to other activities, it is expected that the 25% instream sediment LRMP S&G would not be met on some streams. By maintaining the Beneficial Uses of water, using Best Management Practices, and sharing implementation monitoring results with Utah Division of Water Quality, the Proposed Action would be in compliance with the Utah Antidegradation Policy and the Clean Water Act (see monitoring forms in Appendix A). The Proposed Action would also be in compliance with Executive Order 11990 in minimizing the degradation of wetlands, and Executive Order 11998 in restoring and preserving the natural and beneficial values served by flood plains.

CUMULATIVE EFFECTS

The cumulative effects area for hydrology and water quality is the Cedar City Ranger District. Allotments and effects are spread across the district. Effects would be difficult to detect off the forest because of the complexity of watershed and stream systems.

Activities considered in the cumulative effects analysis are road construction/maintenance, timber harvesting, watershed restoration, recreation activities, and special uses.

The cumulative effects of past and present livestock grazing in addition to all the other management activities occurring on the Cedar City Ranger District have caused impacts to the hydrology and water quality of the riparian and aquatic systems. Livestock grazing occurs in many of the upland and riparian areas across the Cedar City Ranger District. Improvement is anticipated in unsatisfactory condition riparian areas. Therefore, cumulative effects of the proposed action when added to other past, present, and reasonably foreseeable actions of the agency and others is expected to maintain or improve the hydrology and water quality on these allotments and meet LRMP management area direction. Since current erosion and sedimentation rates would continue, it is expected that the 25% instream sediment LRMP S&G would not be met on some streams. However, compliance with applicable laws and Executive Orders will be maintained.

NO ACTION

DIRECT/INDIRECT EFFECTS

No grazing would result in maintenance of riparian areas in desired condition (mid to late seral greenline), and improvement of riparian areas not in desired condition. Improvement would occur faster than with proper use. Infiltration rates would increase by generally 25-50% on previously livestock compacted uplands and riparian areas, resulting in less runoff and erosion. Riparian plants would be expected to progress in vigor and seral stage toward potential natural community.

This alternative would not contribute to the further impairment of 303(d) listed waters or Utah High Priority Watersheds for Nonpoint Source Pollution Control.

This alternative meets the management area direction prescribed in the LRMP. there would be less erosion and sedimentation than the Proposed Action, but it is not known if the 25% instream sediment LRMP S&G would be met across the District. By maintaining the Beneficial Uses of water we would be in compliance with the Utah Antidegradation Policy and the Clean Water Act. We would also be in compliance with Executive Order 11990 in minimizing the degradation of wetlands, and Executive Order 11998 in restoring and preserving the natural and beneficial values served by flood plains.

CUMULATIVE EFFECTS

Riparian and stream conditions would be expected to improve district-wide where grazing has occurred as described under direct and indirect effects faster than with proper use.

Livestock grazing has occurred on many of the upland and riparian areas on the Cedar City Ranger District. Improvement is anticipated in infiltration rates and unsatisfactory condition riparian areas. Therefore, cumulative effects of the no grazing alternative when added to other past, present, and reasonably foreseeable actions of the agency and others is expected to improve the hydrology and water quality on these allotments and meet LRMP management area direction. Since current erosion and sedimentation rates would continue, due to other activities, it is expected that the 25% instream sediment LRMP S&G would not be met on some streams. However, compliance with applicable laws and Executive Orders will be maintained.

FISHERIES AND AQUATIC MACROINVERTEBRATES

PROPOSED ACTION

DIRECT/INDIRECT EFFECTS

This analysis is for the Black Mountain, Dandelion Knoll, Deep Creek, Deer Valley, Haycock Peak, Haycock Mountain/Brian Head, Sage Valley/Horse Valley and Six Lakes/Navajo Ridge sheep allotments.

Grazing at proper use by the livestock numbers, season of use, and grazing system proposed for each allotment should provide adequate protection to ensure that any impacts caused by livestock grazing on the uplands and riparian areas are within acceptable limits.

The proper use criterion will maintain those riparian areas that are in mid to late seral greenline in a desired condition and improve riparian areas that are not in a desired condition (very early to early seral greenline). Additionally, pond developments have been proposed for the Haycock Creek Allotment which should result in better livestock distribution and proper forage utilization.

The overall direct and indirect effects to the aquatic fauna should result in (1) slightly lower water temperatures as overhead cover increases, (2) less sediment entering the stream, (3) improved spawning habitat, (4) increased macroinvertebrate diversity and abundance, (5) deeper and narrower stream channels, and (6) increased instream and overhead cover for trout. Together, these improved conditions could result in the streams capability to produce increased numbers of fish and healthier aquatic macroinvertebrate communities. The rate at which improvement occurs is dependent upon several variables but the rate of recovery would be slower under the Proposed Action than the No Action alternative.

CUMULATIVE EFFECTS

The cumulative effects area for fisheries and aquatic macroinvertebrates is the Cedar City Ranger District. Since the sheep allotments are distributed throughout the district, the effects would be difficult to detect off forest due to the dynamic and natural variability of aquatic systems.

Activities considered in the cumulative effects analysis include road construction and maintenance, timber harvesting, watershed restoration, recreation activities, special uses and livestock grazing.

The cumulative effects of all other past and present management activities occurring on the Cedar City Ranger District have resulted in adverse impacts to some upland and riparian areas. These adverse effects are often reflected in degraded fish and aquatic macroinvertebrate habitat. Under the Proposed Action, improvement is expected in upland and riparian areas in unsatisfactory condition. The cumulative effects of the proposed action when added to other past, present and reasonably foreseeable actions within the cumulative effects analysis area is expected to maintain or improve uplands and riparian areas. This, in turn, should result in improved habitat conditions for fish and aquatic macroinvertebrates. The proposed action, therefore, would be in compliance with the goals and objectives in the Forest Plan (LRMP IV-5).

NO ACTION

DIRECT/INDIRECT EFFECTS

No grazing would result in the maintenance of mid to late seral greenline riparian areas in a desired condition, and improvement of riparian areas in very early to early seral greenline. The effects of the No Action alternative would be similar to those described for proper use except that the rate of improvement would be faster under the No Action alternative.

CUMULATIVE EFFECTS

Activities considered in the cumulative effects analysis include road construction and maintenance, timber harvesting, watershed restoration, recreation activities, special uses and livestock grazing.

The cumulative effects of all other past and present management activities occurring on the Cedar City Ranger District have resulted in adverse impacts to some uplands and riparian areas. These adverse effects are often reflected in degraded fish and aquatic macroinvertebrate habitat. Under the No Action alternative, improvement is expected in upland and riparian areas in unsatisfactory condition. The cumulative effects of the No Action alternative when added to other past, present and reasonably foreseeable actions within the cumulative effects analysis area is expected to maintain or improve uplands and riparian areas. This, in turn, should result in improved habitat conditions for fish and aquatic macroinvertebrates. This alternative would be in compliance with the goals and objectives in the Forest Plan (LRMP IV-5).

RECREATION/VISUALS

PROPOSED ACTION

DIRECT/INDIRECT EFFECTS

Under the Proposed Action, livestock would have access to all suitable rangelands within permitted allotments, but use would be rotated through confined pastures for specified periods of time. Conflicts between recreation use and livestock grazing occurs where livestock concentration areas are common with popular recreation sites such as Dark Hollow and Bunker Creek and the Brian Head resort area. Several subdivisions present possible conflict situations with livestock grazing. Grazing at proper use and appropriate livestock distribution will moderate those impacts. Emphasis on riparian area management will improve conditions for camping, fishing, sight-seeing, and wildlife viewing. The Dixie National Forest LRMP objective of managing livestock grazing to be compatible with recreation activities would be met under the Proposed Action. Landscape management and visual objectives of preservation, retention, partial retention, modification, and maximum modification would be met under the Proposed Action.

CUMULATIVE EFFECTS

The area which will be considered in the cumulative effects analysis for recreation is the Cedar City Ranger District, Cedar Breaks National Monument, Zions National Park, and Bryce Canyon National Park. This area was selected on the basis of use patterns of the area by recreationists, and similarity of recreation activities on these lands.

Many multiple-use management actions, occurring within the allotments under analysis, have combined cumulative effects on recreation opportunities and visual experiences, i.e. timber sales, watershed rehabilitation projects, wildlife and fisheries habitat improvement projects, recreation developments, trails, ski areas, mining and oil and gas development, utility corridors, roads, etc. The construction of new roads is the greatest single impact on the recreation resource. With a limited land base, the opportunities for

non-motorized recreation are disappearing. Range activities rarely change the acres of recreation opportunities. Visual landscapes are impacted to a greater extent by the construction of roads and the removal of trees than by livestock grazing

NO ACTION

DIRECT/INDIRECT EFFECTS

With the removal of livestock from National Forest allotments, conflicts between recreationists, private landowners, and livestock would be eliminated. Vegetation would increase in areas of common concentration. Picturesque scenes of cattle grazing in the open meadows would no longer occur on the Forest. The presence of fine fuels to carry fire would be more predominant, and wildfire would play more of a role in the landscape. Visual quality objectives could be met. Forest Plan recreation goals and objectives would be met.

CUMULATIVE EFFECTS

There would be no adverse cumulative impacts to the recreation and visual resources resulting from the No Action alternative.

SOCIAL/ECONOMICS

The effects of implementing the Proposed Action and the No Action Alternatives are relative to permittees cost/benefits from grazing livestock on the allotments, the benefits to rural and county economies from livestock grazing, and revenues/costs to the government.

PROPOSED ACTION

DIRECT/INDIRECT EFFECTS

Permitting livestock grazing would sustain the existing National Forest System-dependent ranching industry in south-central Utah. Although grazing fees would continue to be charged, and permittees would remain responsible for improvement maintenance and cooperative construction of new improvements, the net economic benefit is positive. Under the Proposed Action there would not be adverse social or economic effects to either permittees or rural community economies. Under the Proposed Action there would not be adverse effects to rural lifestyles. The Proposed Action meets the intent of the Dixie National Forest Land and Resource Management Plan and is in compliance with laws permitting the grazing of livestock on National Forest System lands.

CUMULATIVE EFFECTS

The area which will be considered in the cumulative effects analysis for social/economics impacts is the five-county area of southern Utah consisting of Garfield, Iron, Kane, Washington, and Wayne Counties. Piute County is also within the Dixie zone of influence, but includes only an extremely small part of the Dixie National Forest and will not be included in impact analysis. This area was selected on the basis of adjacency with rural communities dependent upon National Forest resources for an economic base. The five-county area, rather than isolation by county, was selected because of the regional

inter-dependency upon the livestock industry as an economic base. Past, present, and foreseeable future economic activities considered relevant to this analysis of cumulative effects are the timber, recreation, and tourism industries.

Under the Proposed Action, along with a sustainable timber supply and emerging recreation and tourism, cumulative effects of sustained, permitted grazing would be positive.

NO ACTION

DIRECT/INDIRECT EFFECTS

Loss of permits on National Forest allotments would directly affect local residents and permittees. In order to maintain a viable ranching enterprise, permittees would have to replace the forage lost on National Forest land with other purchased or leased forage at a comparable cost/benefit ratio. Eliminating livestock grazing on the National Forest would have significant adverse effects on rural communities should the loss of grazing on the Forest induce family or commercial ranching enterprises to go out of business. The No Action Alternative would have adverse effects on maintaining way-of-life and quality-of-life for permittees and local residents dependent on an agriculture-based economy. The No Action alternative would not be consistent with the Dixie National Forest LRMP which allocates suitable rangelands for forage utilization and establishes a desired future condition of managing these lands for livestock grazing. Not permitting livestock grazing does not comply with a number of laws, including the Multiple Use-Sustained Yield Act of 1960, the Granger-Thye Act, the Federal Land Policy and Management Act of 1976, and the 1995 Rescission Bill.

CUMULATIVE EFFECTS

There would be an adverse cumulative effect to the area economy from a loss of permitted grazing. The degree of adversity would depend on the availability of substitute forage, substitute timber supplies should timber sales decline, and ability of local communities to diversify and benefit from increased tourism and recreation income opportunities. Economic decline for a sustained period could result from the No Action alternative.

CULTURAL RESOURCES

PROPOSED ACTION

DIRECT/INDIRECT EFFECTS

Within the project analysis areas of the following allotments cultural resource surveys have been conducted as outlined. Only those Historic Properties considered to be susceptible as described in the Comprehensive Literature Review of the Effects of Livestock Grazing on Natural Resources will need further consideration and the mitigation is outlined below. Ground disturbing activities associated with the construction of ponds on the Haycock Creek Allotment and other new development projects will require surveys prior to construction.

ALLOTMENT	ACRES SURVEYED	TOTAL SITES	HISTORIC PROPERTIES	SUSCEPTIBLE SITES
Black Mountain	1536	12	5	0
Dandelion Knoll	2188	26	23	0
Deep Creek	2936	9	7	0
Deer Valley	0	0	0	0
Haycock Creek	533	13	5	0
Haycock Mtn/Brianhead	2188	28	22	0
Sage Valley/Horse Val.	2980	22	11	0
Six Lakes/ Navajo Rid.	3480	28	6	0

Those areas which show no previous surveys were evaluated for potential of sites from adjacent surveyed areas. The potential for locating sites in these areas is low to moderate and there will be no impacts from grazing on susceptible sites. No effects from grazing will occur to any sites within the above outlined area.

CUMULATIVE EFFECTS

Archeological surveys are conducted prior to ground-disturbing activities, and any sites which are determined to be eligible for the National Register of Historic Places are avoided in project design/construction. Because of this, there will be no cumulative effects analysis on heritage resources in this Environmental Assessment.

MONITORING

Implementation and effectiveness monitoring will be conducted to measure the effects of the selected management practices on resources within the respective allotments.

Implementation monitoring determines if the project was implemented as described in the EA and in the terms and conditions of the respective permits; e.g., actual livestock use does not exceed proper use guidelines in riparian areas.

Effectiveness monitoring determines if the management actions accomplished what was intended; e.g., proper use maintains or improves vegetation condition.

Monitoring practices have been developed for each of the resources identified as issues in this EA. Appendix A contains the monitoring forms which fully describe the objective of monitoring, the item to monitor, the type of monitoring, the methods and parameters that will be used, the frequency and duration of monitoring, the project costs associated with the monitoring, the procedures used to report results, and who will be responsible for implementing the monitoring practices.

Key areas have been identified for monitoring on each grazing allotment. They are listed below in Table 5.

TABLE 5
KEY AREAS BY ALLOTMENT

<u>ALLOTMENT</u>	<u>KEY AREAS</u>
BLACK MTN.	Houston Flat, Bowers Flat Spring, Black Mountain trend study.
DANDELION KNOLL	Dandelion Knoll trend study, Lower Mammoth Creek, East of Minnie's Mansion site.
DEEP CREEK	Upper Deep Creek, Dry Valley trend study, Upper Ikes Valley.
DEER VALLEY	Lava Spring Flat, Upper Deer Valley.
HAYCOCK MTN.-BRIAN HEAD	Coal Pit Spring, Trick Tank Flat, Square pond, Skunk Spring, Head of West Fork of Castle Creek.
SAGE VALLEY/HORSE VALLEY	The Lease, King's Valley, Bull Pasture, Blowhard trend study, Sage Valley trend study, Midway Meadow trend study.
SIX LAKES/NAVAJO RIDGE	The "Kitchen", Head of Last Chance, Six Lakes exclosure site, Mammoth Meadow, Cabin Flat, Tink's Racetrack, Navajo Ridge, Bear Flat Hole.

CHAPTER 5: LIST OF PREPARERS

The following individuals were members of the Interdisciplinary Team or provided technical support.

INTERDISCIPLINARY TEAM MEMBERS

<u>NAME</u>	<u>TITLE</u>	<u>SUBJECT AREA</u>
Ric Rine	NFMA IDT Leader	NEPA/Planning
Joe Reddan	NEPA IDT Leader	NEPA Coordination
Dave Grider	Forest Range Staff Officer Permit Issuance Team Leader	Range
Dale Harris	District Range Conservationist	Range
Randy Houston	District Range Technician	Range
James Bayer	Soil Scientist	Soils
Janice Staats	Hydrologist	Watersheds
Steve Robertson	Fisheries Biologist	Fisheries
Priscilla Summers	West Zone Biologist	Wildlife
Ron Rodriguez	Forest Biologist	Wildlife
Max Molyneux	Landscape Architect	Recreation
Marian Jacklin	Archeologist	Cultural Resources

APPENDIX A

MONITORING FORM

PROPER USE CRITERIA COMPLIANCE MONITORING

OBJECTIVE: Determine degree and distribution of livestock use. This would include monitoring use on both uplands and riparian areas.

ITEM TO MONITOR: Percent utilization, by weight, of forage plants in upland key areas; stubble height on hydric species in riparian key areas; use patterns on suitable range; streambank stability; and woody species utilization.

TYPE OF MONITORING: Implementation monitoring

METHODS/PARAMETERS: Utilization measurements on key upland forage species and shrub/browse species, and stubble height measurements on hydric species in riparian areas; ocular estimates, utilization cages (paired plot method), utilization gauge, and may or may not include utilization mapping.

Grazing effects on other limiting factors (stream bank disturbance, riparian condition, wildlife habitat, and TES), will be recorded. Proper use monitoring may be allotment-wide or key-area-specific, as determined by needs assessment, and may determine the need to initiate comprehensive utilization studies to revise stocking capacity.

FREQUENCY/DURATION: 15% of allotments would be surveyed annually.

PROJECTED COSTS: \$7,500/annually

REPORTING PROCEDURES: Inspection notes and/or Unit Examination record and utilization maps filed in 2210/2220 Section of the Allotment Folder.

RESPONSIBILITY: Funding: Forest Management Team
Monitoring: IDT

MONITORING FORM

INTERDISCIPLINARY (IDT) MONITORING

OBJECTIVE: Interdisciplinary Team measurement of the effects of implementation of proper use grazing prescriptions on forest resources.

ITEM TO MONITOR: Monitor vegetation utilization, streambank stability, riparian condition, wildlife and fisheries habitat condition, soils and watershed condition, impacts on cultural resource sites, and conflicts with recreational use.

TYPE OF MONITORING: Effectiveness monitoring.

METHODS/PARAMETERS: Field review/inspection on riparian and upland key areas--multiple key areas and multiple allotments, pending intensity and complexity of review.

FREQUENCY/DURATION: Annual field review per Ranger District (allotments/key areas scheduled by needs assessment). Some allotments may not be reviewed in a 10-year cycle; others may be reviewed more than once, depending on needs assessment.

PROJECTED COSTS: \$16,000

REPORTING PROCEDURES: Field inspection notes, photo documentaries, IDT report of findings. File located in 2210/2220 Section of Allotment Folder, respective Ranger District.

RESPONSIBILITY: Funding: Forest Management Team
Scheduling: Forest Range Staff
Monitoring: IDT

MONITORING FORM

ALLOTMENT INSPECTION

OBJECTIVE: Determine degree of compliance with terms and conditions of the grazing permit, construction of needed range improvements, and compliance with law (Clean Water Act, Endangered Species Act, National Forest Management Act).

ITEM TO MONITOR: Livestock distribution, trampling/trailing damage, construction/maintenance of improvements, vegetation utilization, salting compliance, control of livestock while on allotment, and overall compliance with annual plan of use. Assess if proper use grazing is maintaining water quality standards in compliance with the existing Memorandum of Understanding with the Utah Department of Environmental Quality. Assess if proper use grazing is maintaining utilization standards to provide habitat for TEPS plants, wildlife, and fish.

TYPE OF MONITORING: Effectiveness monitoring

METHODS/PARAMETERS: Annual plan of use, structural improvement standards, grazing permit, location map, and livestock brand book. Methods used may include: ocular reconnaissance, field checking, transects and/or plot sampling, photo points, and office review.

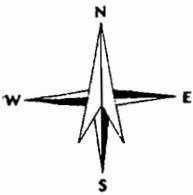
FREQUENCY/DURATION: 15% of allotments would be inspected annually.

PROJECTED COSTS: \$7,500 annually

REPORTING PROCEDURES: Unit Examination record (R4-2200-15) completed and filed in 2210/2220 Section of the Allotment Folder. Reports, transect summaries, photo documentation, and finding evaluations will be duplicated in the appropriate 2670 Wildlife files and the 2520-5 Watershed Monitoring Plans files. Monitoring results will be shared with the Utah Division of Water Quality in compliance with the existing MOU.

RESPONSIBILITY: IDT

APPENDIX B



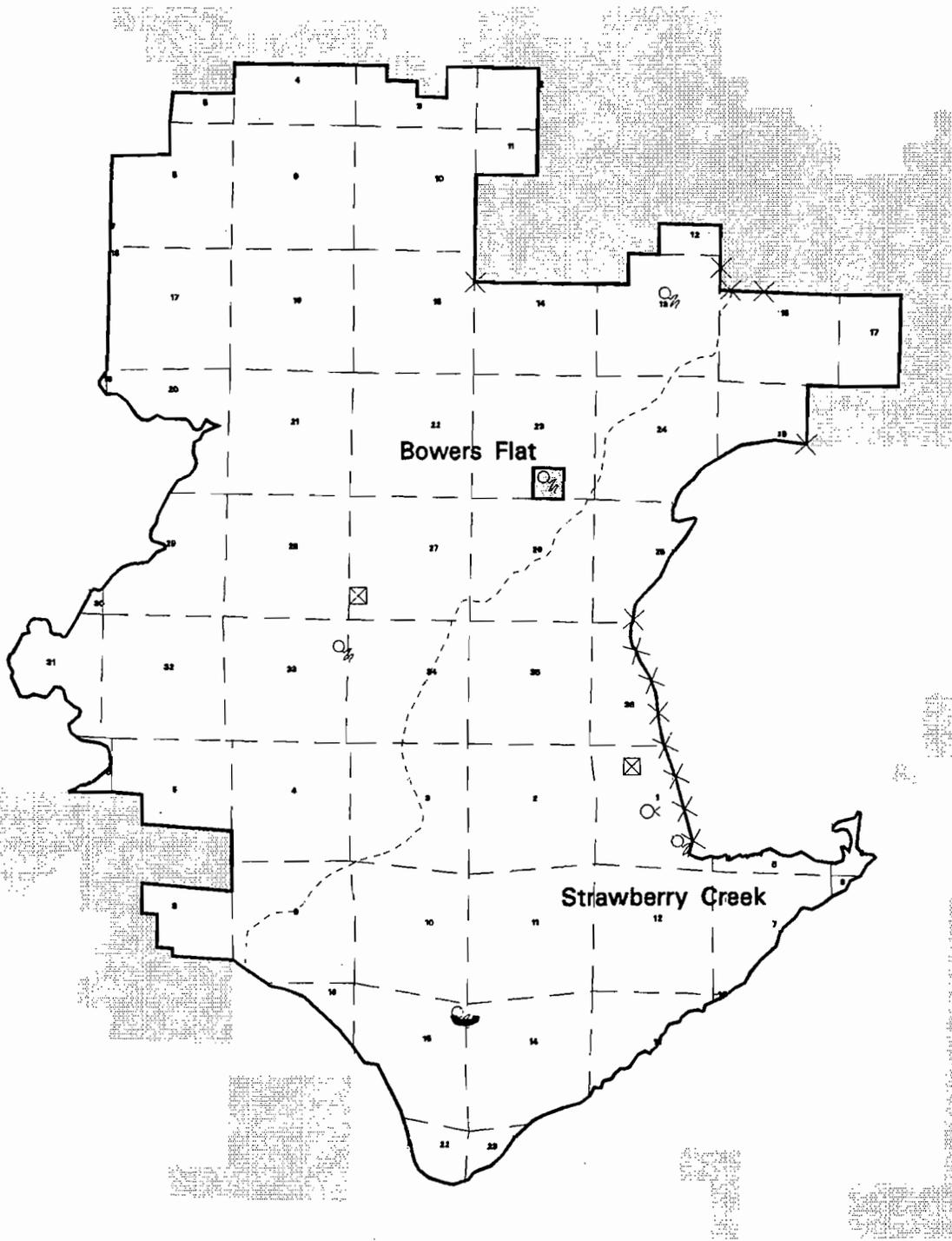
Cedar City Ranger District Black Mountain Allotment



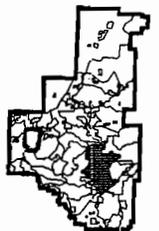
(Existing Range Improvements)

LEGEND

- Allotment Boundary
- Unit Boundary
- Private Land
- Fence
- Pipeline
- Cattle Guard
- Springs
- Exclosure
- Guzzler
- Stock Pond
- Trough
- Gate

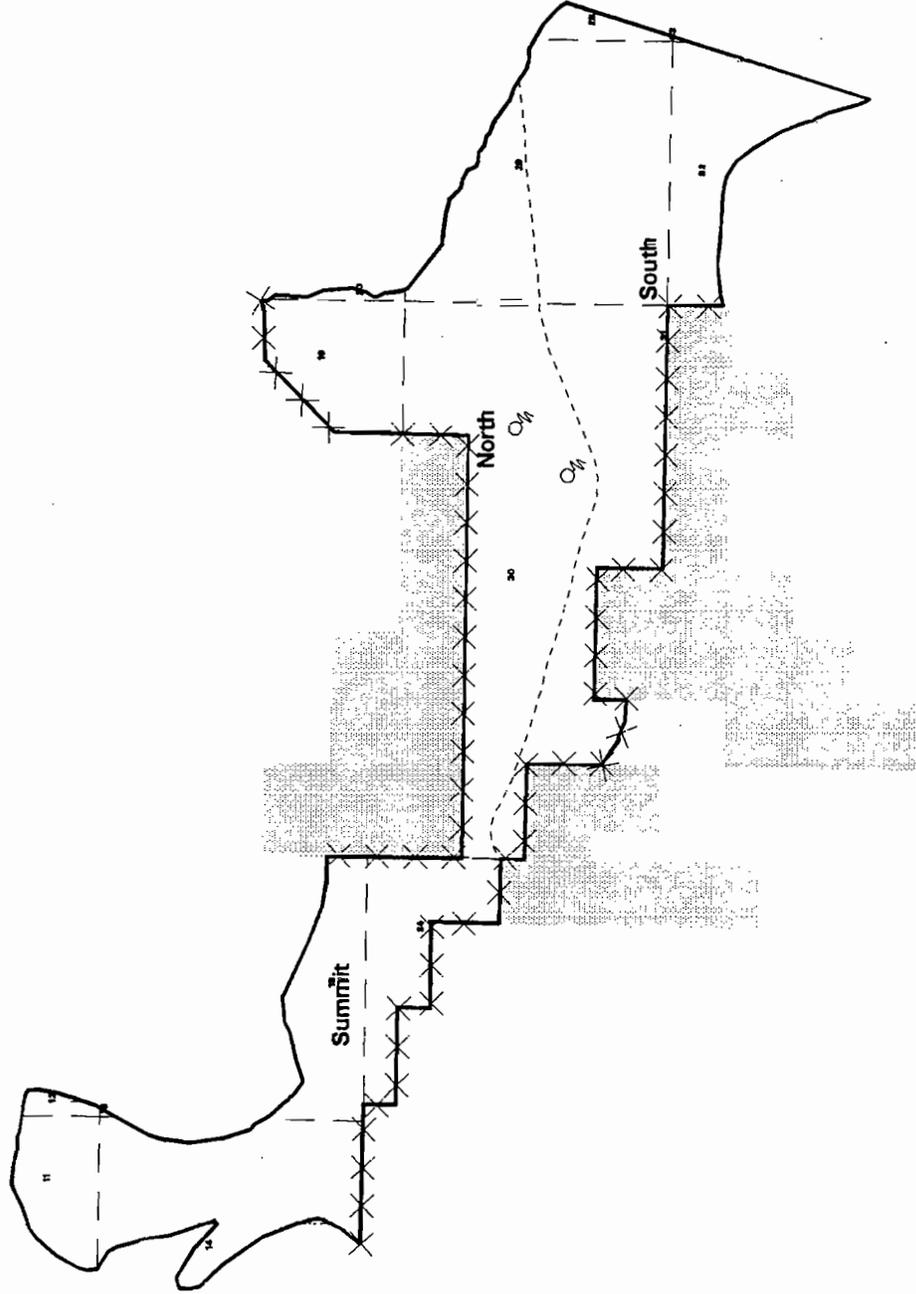
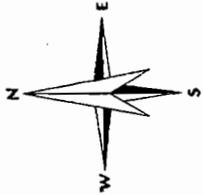


Vicinity Map





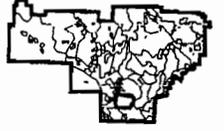
Cedar City Ranger District Dandelion Knoll Range Allotment (Existing Range Improvements)



LEGEND

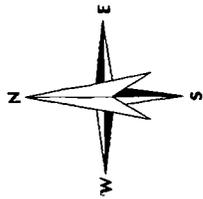
	Allotment Boundary
	Unit Boundary
	Private Land
	Fence
	Pipeline
	Cattle Guard
	Springs
	Exclosure
	Guzzler
	Stock Pond
	Trough
	Gate

Vicinity Map



Prepared by UAS Forest Service
Dale National Forest GIS Staff
Using ARC/INFO 08
April 1988

Original data were compiled from multiple sources and may not meet the US National Mapping Accuracy Standard. For specific data source errors under individual digital data contact the Forest Supervisor, Dale NF, Cedar City, Utah. This map has no warranty as to the accuracy of contents.

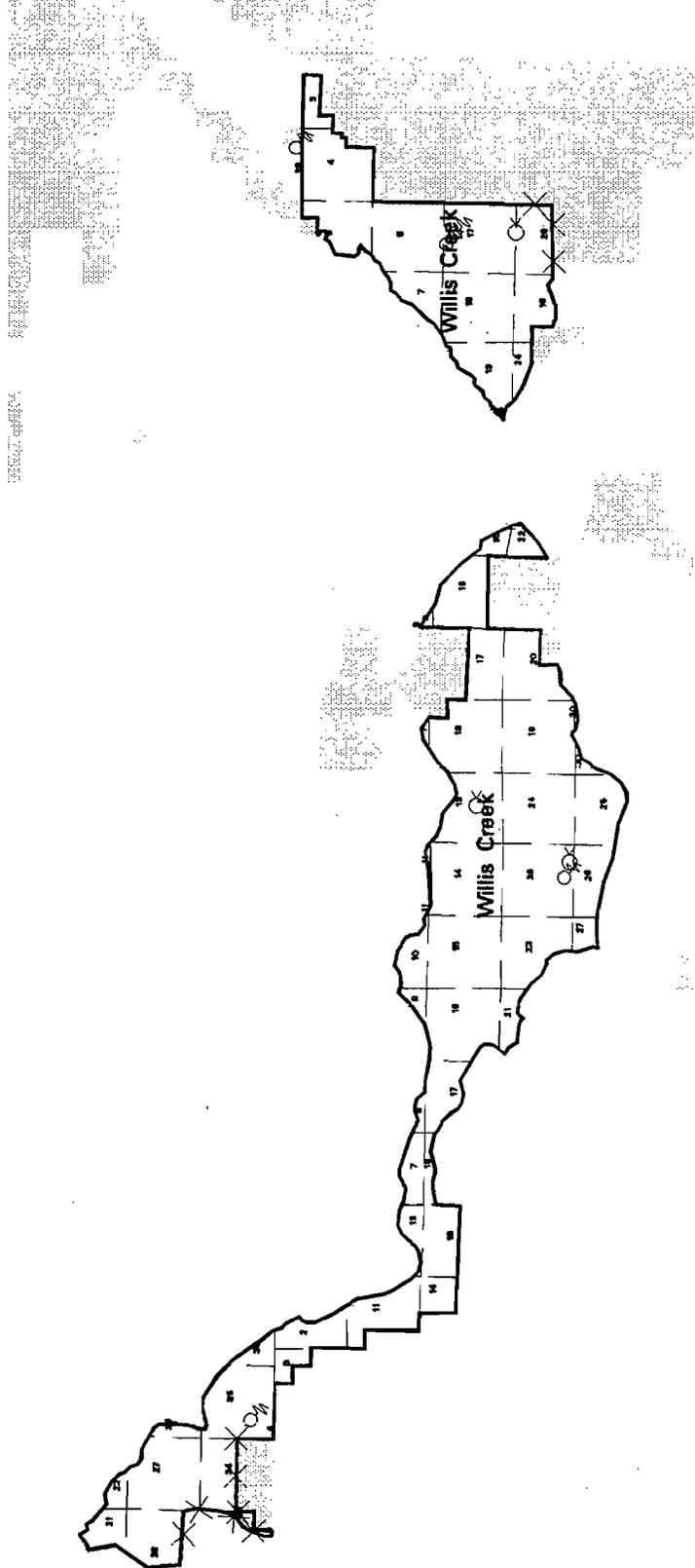


Cedar City Ranger District Deep Creek Range Allotment (Existing Range Improvements)



LEGEND

	Allotment Boundary
	Unit Boundary
	Private Land
	Fence
	Pipeline
	Cattle Guard
	Springs
	Exclosure
	Guzzler
	Stock Pond
	Trough
	Gate

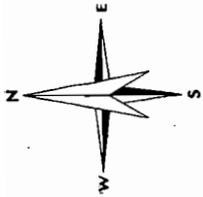


Vicinity Map

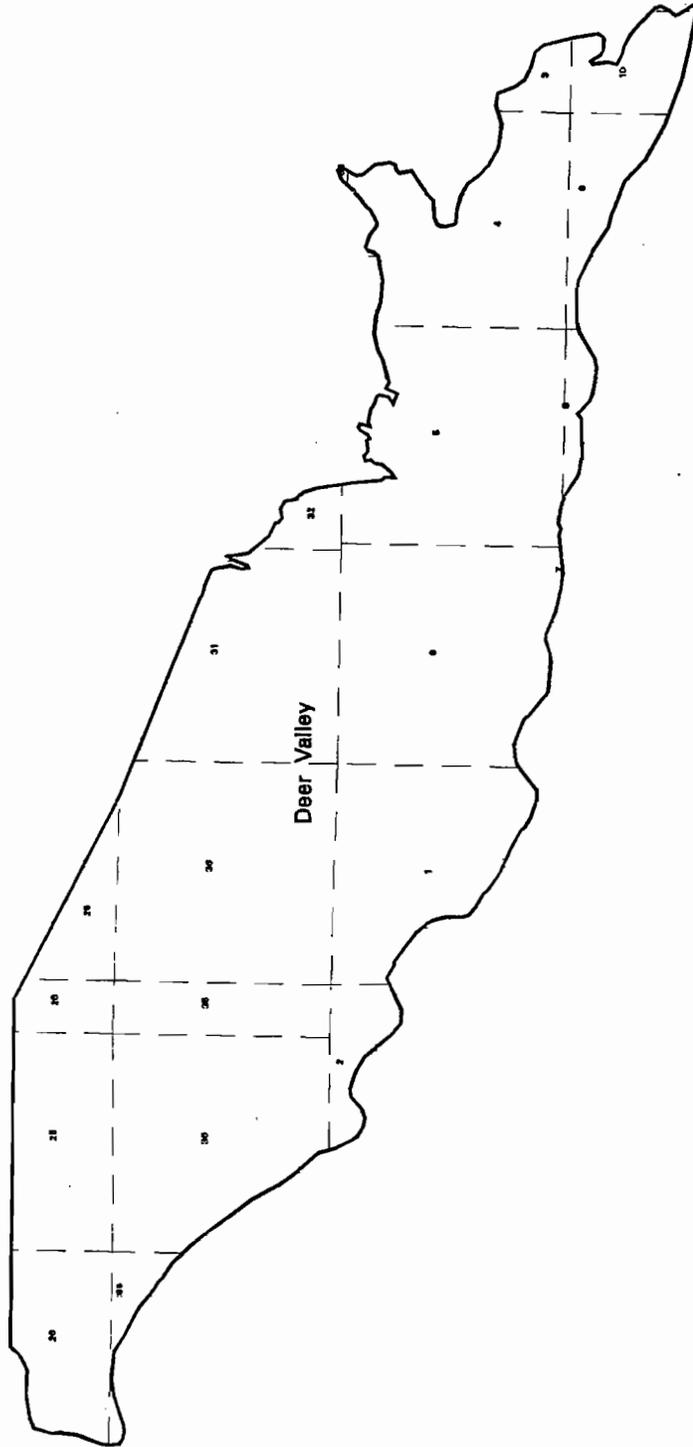


Prepared by USDA Forest Service
Dale National Forest GIS Staff
Using ARC/INFO GIS
April 1995

Original data were compiled from multiple sources and may not meet the US National Mapping Accuracy Standard. For specific data source details and/or additional digital data contact the Forest Administrator, Dale NF, Cedar City, Utah. This map has no warranty as to its contents or accuracy.



Cedar City Range District Deer Valley Range Allotment (Existing Range Improvements)



LEGEND

	Allotment Boundary
	Unit Boundary
	Private Land
	Fence
	Pipeline
	Cattle Guard
	Springs
	Exclosure
	Guzzler
	Stock Pond
	Trough
	Gate

Vicinity Map



Prepared by USDA Forest Service
 Divide National Forest GIS Staff
 Using ArcSWAT 0.8
 April 1995

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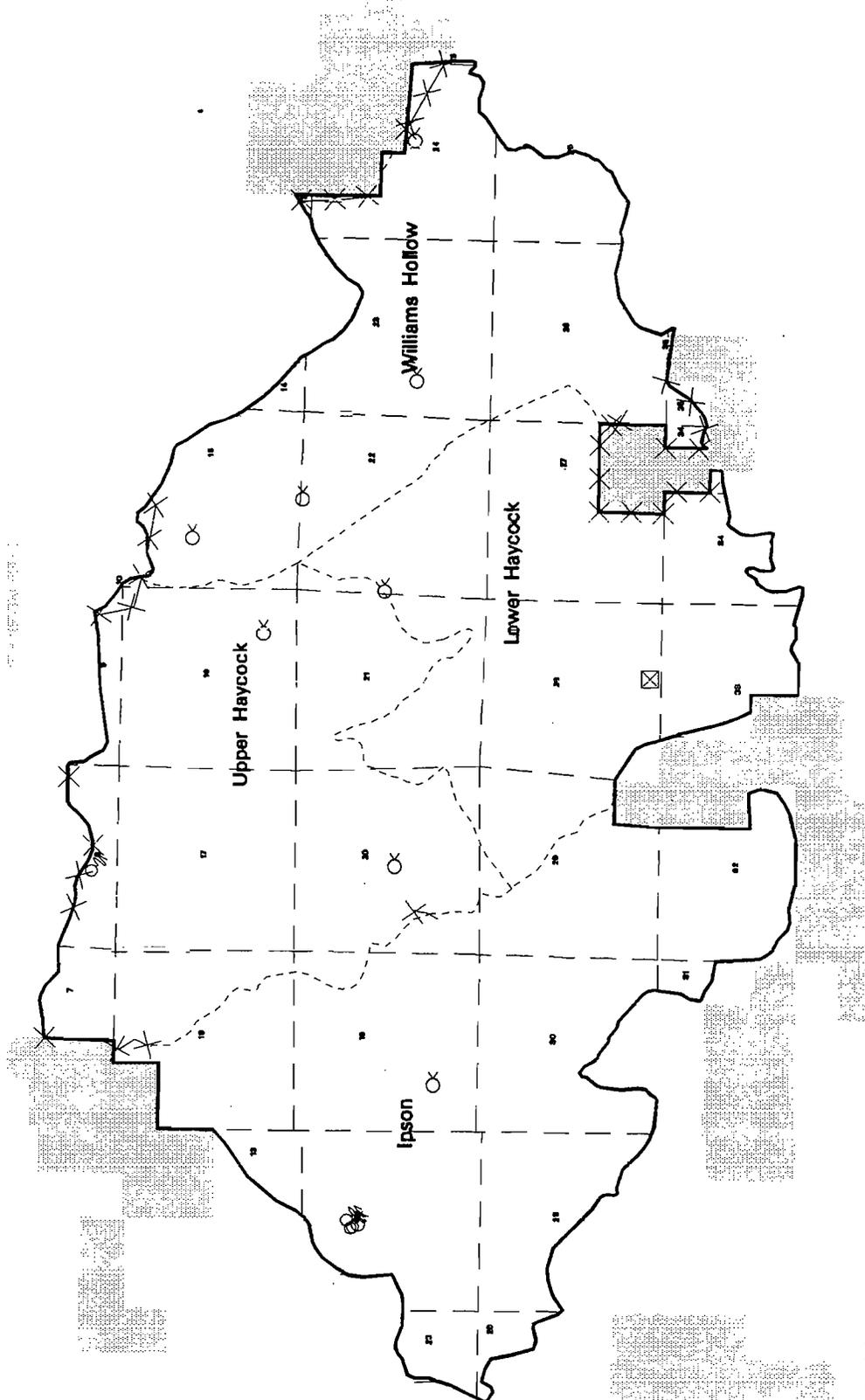
Cedar City Ranger District Haycock Creek Range Allotment

(Existing Range Improvements)

LEGEND

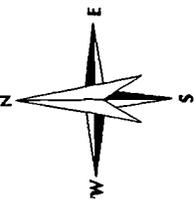
	Allotment Boundary
	Unit Boundary
	Private Land
	Fence
	Pipeline
	Cattle Guard
	Springs
	Exclosure
	Guzzler
	Stock Pond
	Trough
	Gate

Vicinity Map



Prepared by USFWS Forest Service
 Dale Nieland Forest CDB Staff
 Using ARC/INFO GIS
 April 1998

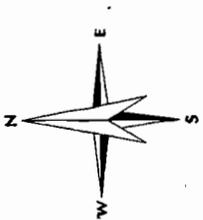
Original data was compiled from multiple sources and may not meet the US National Mapping Accuracy Standard. For specific data source information, contact the Forest Service, Cedar City, Utah. This map has no warranty as to its contents or reliability.





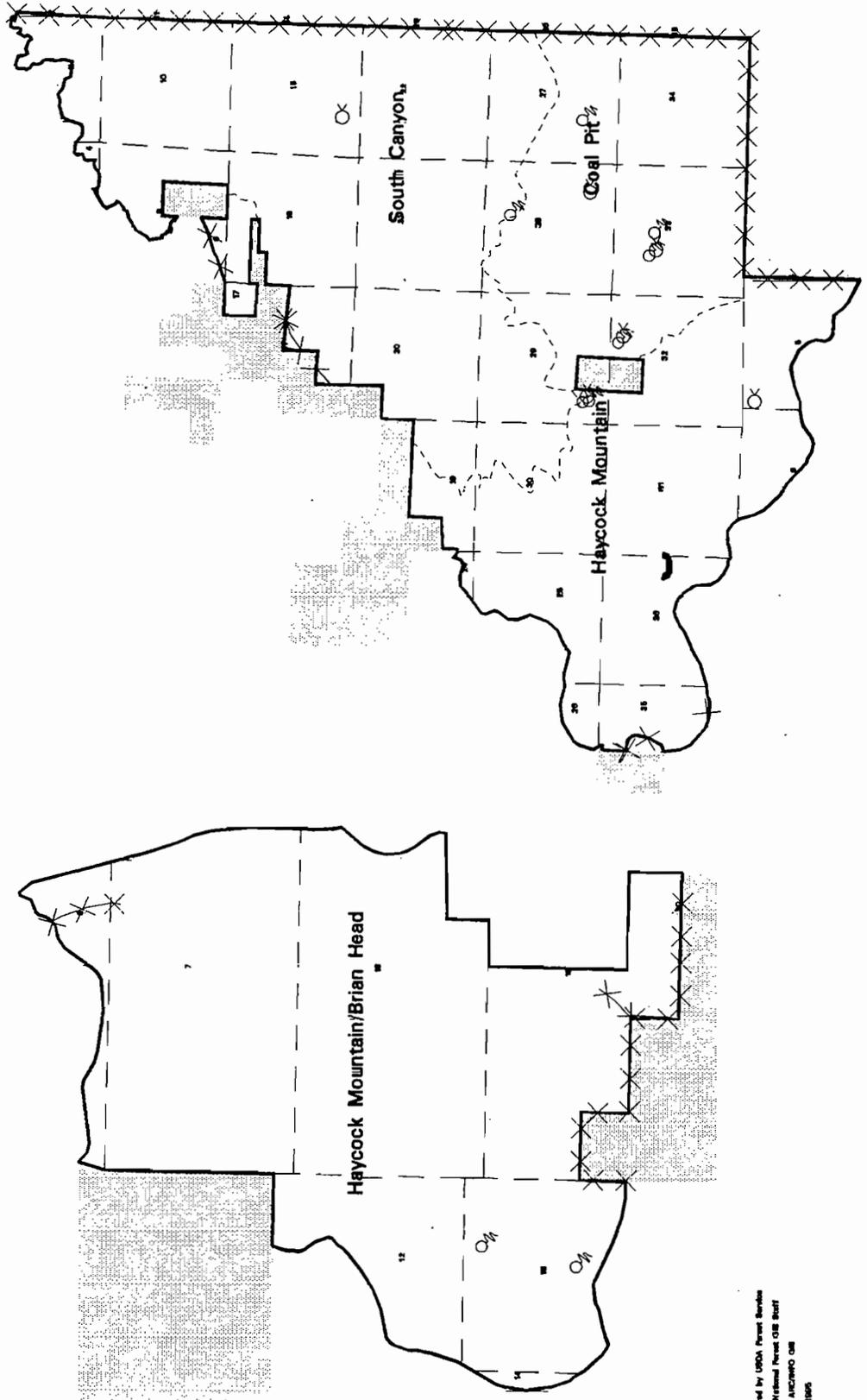
Cedar City Ranger District Haycock Mountain/Brian Head Range Allotment

(Existing Range Improvements)



LEGEND

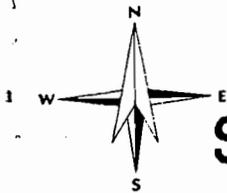
	Allotment Boundary
	Unit Boundary
	Private Land
	Fence
	Pipeline
	Cattle Guard
	Springs
	Exclosure
	Guzzler
	Stock Pond
	Trough
	Gate



Refer to Vicinity Map for actual location
This map is not to scale.

Prepared by USDA Forest Service
Diana National Forest O&E Staff
Using ANCDRAW 08
April 1995

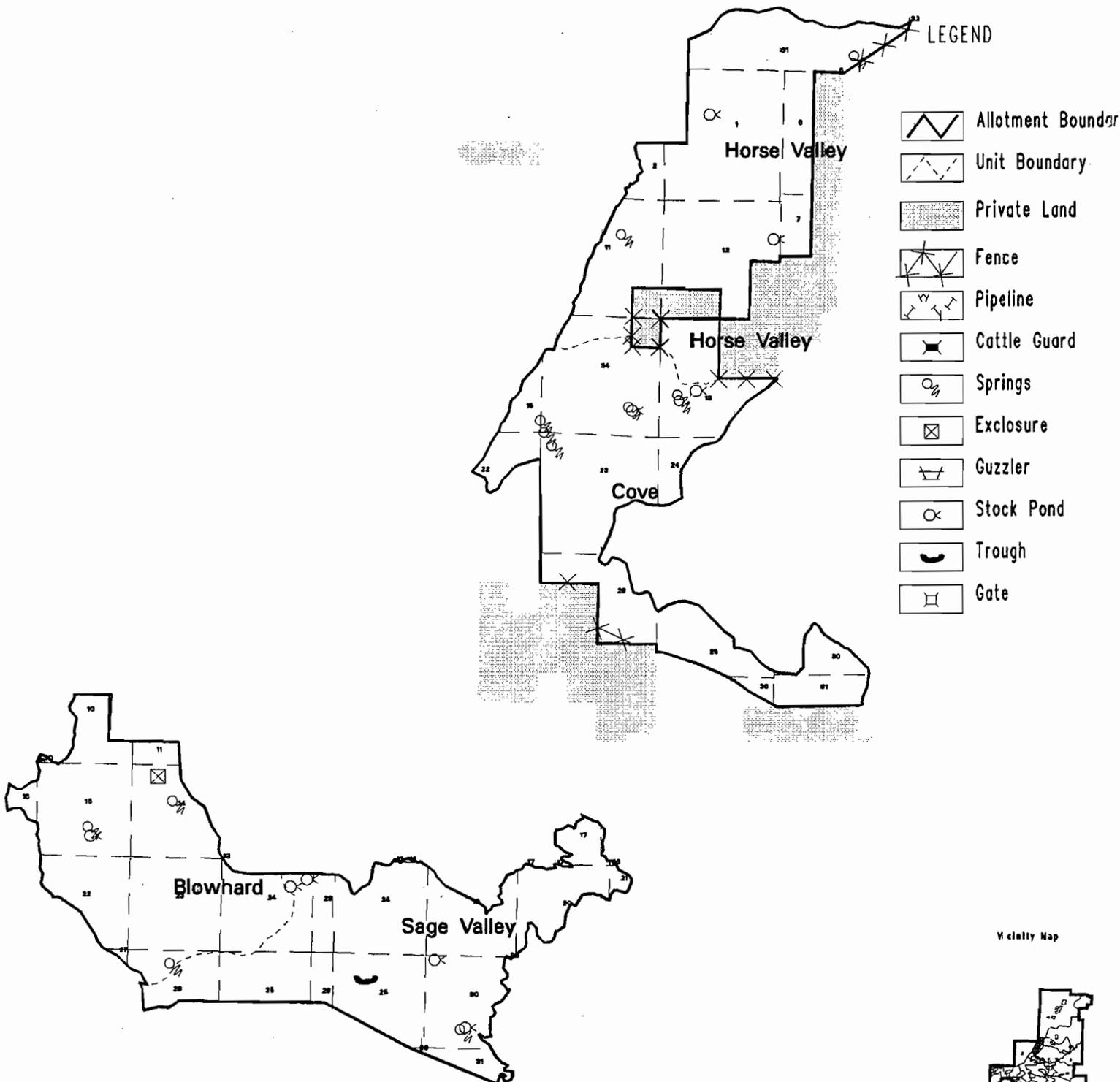
Original data was compiled from multiple sources and may not meet the US National Mapping Accuracy Standard. For specific data source information and/or additional digital data sources see Permit Revisions, Table 107, Cedar City Unit. This map has no warranty as to its veracity or accuracy.



Cedar City Ranger District Sage Valley/Horse Valley Allotment



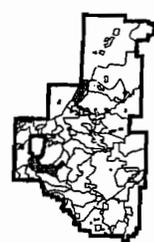
(Existing Range Improvements)

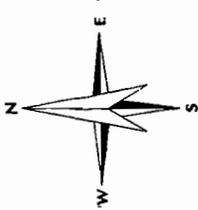


LEGEND

-  Allotment Boundary
-  Unit Boundary
-  Private Land
-  Fence
-  Pipeline
-  Cattle Guard
-  Springs
-  Enclosure
-  Guzzler
-  Stock Pond
-  Trough
-  Gate

Visually Map

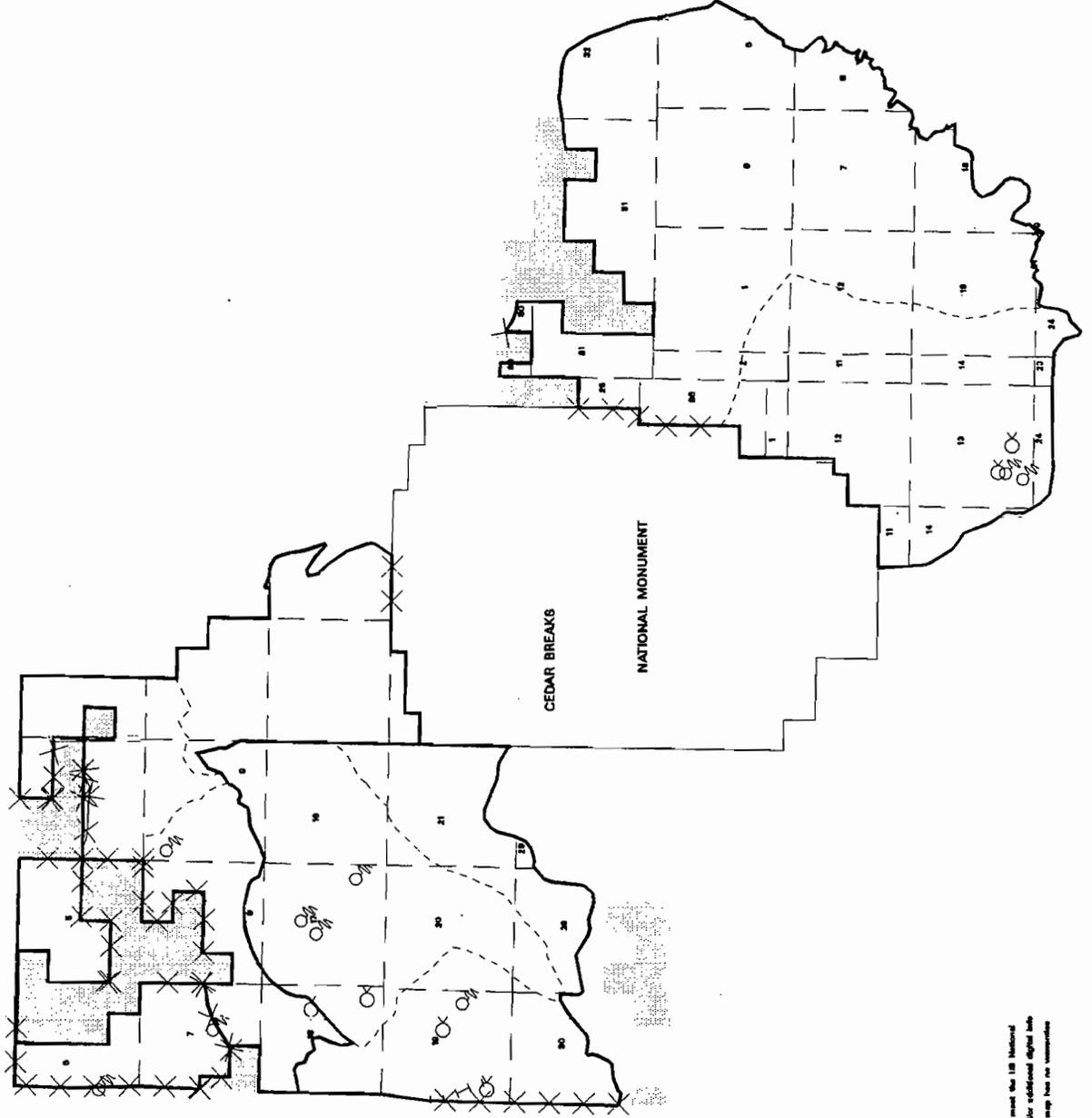




Cedar City Ranger District

Six Lakes/Navajo Ridge Range Allotment

(Existing Range Improvements)



LEGEND

	Allotment Boundary
	Unit Boundary
	Private Land
	Fence
	Pipeline
	Cattle Guard
	Springs
	Exclosure
	Guzzler
	Stock Pond
	Trough
	Gate

Vicinity Map



Prepared by USFWS Forest Service
 Data National Forest (US Forest)
 Using ARC/INFO GIS
 April 1995

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