Topic 7 – Rangeland Capability and Suitability

Livestock Grazing/Range Management

Introduction

The analysis of livestock grazing and range management completed for this Forest Plan Revision is *different than analysis for other resources* because in 1996, a complete Environmental Impact Statement was developed specifically to address needs for range management at the Forest Plan level. This analysis resulted in amendment of the 1985 Forest Plan with management direction needed to guide range management forestwide. Results of that analysis are discussed below and that management direction is applied to all Alternatives and adopted in the Revised Forest Plan. The only other National Forest Management Act required items that still need to be addressed in this Forest Plan Revision analysis are: determinations of rangeland capability, suitability, condition and trend, projected outputs, and actions planned for restoration of lands in unsatisfactory condition. The analysis presented here focuses on these areas and *does not repeat* the in-depth analysis completed to support the Rangeland Health Amendment of 1996.

Laws, Policy, and Direction

Laws and Policies - Numerous laws, regulations, and policies govern the use and administration of rangeland resources on National Forest administered lands. National laws and regulations have also been interpreted for implementation in Forest Service Manuals, Handbooks, and Regional Guides. All grazing activities authorized under permit must comply with these laws, regulations, and policies, which are intended to provide general guidance for the implementation of grazing practices, and for protection of rangeland-related resources.

Regulations for implementing the **National Forest Management Act (NFMA):** found at 36 CFR 219.220 state "the suitability and potential capability of National Forest System lands for producing forage for grazing animals and for providing habitat for management indicator species shall be determined." These regulations go on to require determinations of lands suitable for grazing and browsing, condition and trend of these lands; estimates of present and potential supply and use of forage, capability to produce suitable food and cover for selected wildlife species; and identification of lands in less than satisfactory condition along with appropriate action planned for their restoration. In addition, alternative range management prescriptions are to consider grazing systems, facilities, land treatment, vegetation manipulation, pest problems, interactions among livestock, wild horses and burros, and wild animals, direction for rehabilitation, and comparative cost efficiency.

Existing Forest Plan Direction - In 1996, the Environmental Impact Statement for the Wasatch-Cache National Forest Rangeland Health Forest Plan Amendment **(**USDA Forest Service, 1996**)** was completed. The purpose of this amendment was to provide enhanced management direction for rangelands forestwide, establishing a framework within which rangelands could be managed until future project level decisions (such as allotment management plans) could be made. Furthermore, the purpose was to define broadly, the desired future condition of rangeland

resources and the standards and guidelines necessary to maintain healthy rangelands, riparian and watershed conditions, and to move toward goals and objectives of the Forest Plan. A premise of this effort was that plants have limits as to how much soil compaction, trampling, and repeated top removal they can withstand and still remain as healthy individuals. Continued high levels of grazing by livestock and/or wildlife can result in decreased individual plant vigor and ultimately changes in overall vegetation composition. The less palatable (and often undesirable) species can increase while palatable species decrease resulting in less favorable conditions for watershed protection and certain wildlife habitat elements. Livestock management, wildlife use, and unmanaged recreation can affect riparian and stream habitats by reducing or eliminating riparian vegetation, increasing soil compaction and/or sedimentation, reducing bank stability, affecting water quality, and impacting habitats for aquatic species. The Rangeland Health EIS considered all of these factors and adopted management direction designed to properly manage livestock grazing and recreation on rangelands.

The in-depth analysis included a history of livestock grazing in the Forest and an extensive assessment of current conditions including: four types of rangeland vegetation (riparian, upland, alpine, and aspen) and watersheds, social and economic considerations, and a number of on-going uses of rangelands including recreation, livestock grazing and wildlife uses. Significant issues considered and used to develop a range of reasonable alternatives included: effects of livestock, wildlife, and/or undeveloped recreation on rangeland vegetation condition; effects of livestock, wildlife, and/or undeveloped recreation on riparian and upland watershed conditions; extent to which habitat and populations of rare (including threatened, endangered and sensitive) species are protected; extent to which grazing practices compete with and impact conditions of important wildlife habitat; extent to which Northern Utah and Southwest Wyoming lifestyles and economies would be impacted by changes in rangeland standards; and the extent to which the Forest Service would be able to effectively and efficiently employ rangeland standards and guidelines.

After completion of full analysis of alternatives and their potential effects, including extensive public involvement, a Plan Amendment Decision established 1) a general description of the "desired future conditions" for four types of rangelands in the Wasatch-Cache National Forest; 2) Standards and guidelines for sustaining ecosystem health in relation to livestock and wildlife grazing and undeveloped recreation uses on rangelands; and 3) A monitoring plan for short-term implementation and long-term trend.

We have reviewed information and conclusions from the Rangeland Health Amendment analysis and found these to still be valid within this plan revision effort. Therefore we will not re-address these items but will incorporate by reference, decisions made there to apply to all Alternatives in this FEIS with one exception. The **Riparian Class rating system** used in the 1996 Amendment has been reviewed and **updated to reflect species at risk needs**. The update addresses riparian areas that provide habitat for "endangered", "threatened", "proposed", or Forest Service sensitive species (i.e. species at risk). With the update, streams supporting these species are automatically categorized as "Class I" which will emphasize the importance of these areas and the desire to meet responsibilities under the Endangered Species Act and Forest Service Policy. See Appendix L of the Forest Plan for the updated rating system.

As stated in the Introduction to this section, there are some additional planning requirements included in NFMA that were not addressed by the 1996 Rangeland Health Amendment. These items are addressed in this FEIS for Forest Plan Revision.

Site-specific Sources of Direction for Livestock Grazing - It should be noted that additional, more-detailed direction for management of livestock grazing is contained in Allotment Management Plans, Annual Operating Instructions, and Term Grazing Permits. These provide site-specific analysis of rangeland condition and trend and decisions authorizing stocking rates, grazing systems, range structural and non-structural improvements such as fences, water developments, and vegetation treatments, and detailed monitoring plans. While the Forest Plan revision is required to consider, estimate and provide direction for some of these over broad land areas, site-specific decisions must be tied to site-specific analyses not accomplished by Forest Planning.

Affected Environment

Capable Rangeland Acres

Capability is defined as "the potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity."(FSM 1905) Using the Intermountain Region Protocol: Rangeland Capability and Suitability Determinations for Forest Plan Revisions (USDA Forest Service 1998b) a capability analysis was completed to identify areas with the physical characteristics conducive to livestock grazing. Appendix B includes a discussion of capability criteria (forage production, steepness of slope, and distance to water) used in this analysis.

The Wasatch-Cache National Forest contains about 1,240,000 acres of National Forest System lands. Using standard criteria and Geographic Information Systems (mapping tools), an estimated 370,000 acres or 30 percent of those lands are classified as "capable" for domestic livestock grazing. The 1985 Forest Plan estimated capable acres at about 36% of 934,767 acres of National Forest System lands. Table RN-1 displays acres of capable rangeland for each Management Area of the Forest. The Bear, Cache/Box Elder, and Stansbury Management Areas contain the greatest percentage of capable rangelands while the Central Wasatch Management Area contains the lowest percentage of capable rangelands. Capable rangelands are the same for all alternatives. All lands, regardless of slope, are capable and suitable for grazing and browsing by wildlife.

Table RN-1. Capable Rangeland Acres by Management Area (rounded to the nearest 100 acres)

Management Area	Total Acres	Percent Capable	Total Capable Acres
Bear	52,300	59	30,700
Cache-Box Elder	291,100	45	131,900
N. Wasatch-Ogden	141,600	22	31,000
Central Wasatch	97,500	10	9,400
Stansbury	68,600	41	27,800
Western Uintas	279,800	25	70,100
Eastern Uintas	308,400	22	69,100
Forest Total	1,239,300	30	370,000

Source: Forest Service GIS database.

Forage Production

An important component of rangeland management is the ability of the land to produce forage. Based on assessments of forage production alone (in pounds per acre), projections are that the Wasatch-Cache National Forest could support much higher grazing outputs (commonly measured as Animal Unit Months) than the average actual use reported annually (Table RN-2). Such a projection based on forage production alone would be misleading and not very useful because it does not represent how livestock allotments in the National Forest are necessarily grazed and managed. When actual topography which is often quite rugged, distances to water, patterns of rangeland vegetation, condition and effectiveness of structural improvements such as fences and water developments, and operator diligence in herding and salting are taken into account, it is clear that actual grazing outputs can be quite variable. These outputs are more accurately addressed at a site-specific analysis scale (such as for a single or group of similar allotments) where all of these factors can be examined together. In the Wasatch-Cache National Forest, capable rangelands within an allotment are frequently widely scattered. Structural improvements are variable in their condition and effectiveness, and livestock herding and management depends on individual operators. Because of this, forage production is not a viable basis for projecting outputs. Instead our best estimates for the required output projections in this analysis, are based on the relationship between acres of suitable rangelands expected to be grazed by alternative, with actual use levels averaged over a ten year period.

Current Livestock Grazing Levels

Table RN-2 displays current and recent past (1990-1999) livestock grazing in terms of permitted and authorized AUMs. The Forest Service defines an AUM as "the amount of forage required to sustain a 1,000-pound animal for one month." Permitted use is that use level displayed on the grazing permit and represents the maximum number of livestock and season of use allowed. Authorized use is the actual numbers and time period of livestock grazing for any given year. It is reported yearly and displayed in the Annual Operating Instructions.

Livestock grazing is permitted during the summer months. The normal grazing season is the middle of May through the middle of September. The average of authorized grazing outputs for the period 1991 through 1999 was 58,934 sheep and cattle AUMs. For the 1999 grazing year, 71,247 animal unit months were permitted, and 62,653 AUMs were authorized and actually grazed. Actual allotment stocking in Head Months (HM) for the year 2000 was 89,706 sheep head-months and 39,627 cattle HM's.

Table RN-2. Average AUMs for the period of 1990 to 1999, based on actual use

Year	Sheep AUMs		Cattle AUM's		Total AUMs		Difference		*Percent Authorized vs. Permitted*	
	Permitted	Authorized	Permitted	Authorized	Permitted	Authorized	Sheep	Cattle	Sheep	Cattle
1990	32,965	29,139	44,785	39,165	77,750	68,304	3,826	5,620	88%	87%
1991	34,118	30,754	46,357	34,366	80,475	65,120	3,364	11,991	90%	74%
1992	31,277	24,341	45,136	37,254	76,413	61,595	6,936	7,882	78%	83%
1993	36,762	24,501	42,759	36,989	79,521	61,490	12,261	5,770	67%	87%
1994	34,389	26,828	44,013	32,874	78,402	59,702	7,561	11,139	78%	75%
1995	31,615	21,579	39,798	33,393	71,413	54,972	10,036	6,405	68%	84%
1996	17,321	14,348	27,146	15,850	44,467	30,198	2,973	11,296	83%	58%
1997	29,555	24,879	41,692	37,774	71,247	62,653	4,676	3,918	85%	91%
1998	29,555	24,879	41,692	37,774	71,247	62,653	4,676	3,918	85%	91%
1999	29,555	24,879	41,692	37,774	71,247	62,653	4,676	3,918	85%	91%
10 year maximum	36,762	30,754	46,357	39,165	83,119	69,919	12,261	11,991	90%	91%
10 year minimum	17,321	14,348	27,146	15,850	44,467	30,198	2,973	3,918	67%	58%
10 year average	30,711	24,613	41,507	34,321	72,218	58,934	6,098	7,186	80%	82%

Source: Forest Service RAMIS database

Demand Versus Use - The extent to which the overall demand for livestock forage is being met can only be inferred. For both cattle and sheep, average authorized livestock use levels (AUMs per year) have consistently been below term permit numbers and seasons. Actual use levels for the ten-year period 1990 through 1999 averaged 82 percent of permitted. Reasons for this include:

- Limited agency funding to implement capital improvements and range developments.
- Voluntary and involuntary reductions in livestock numbers or seasons for resource protection or personal convenience.
- Permit waivers back to the government that were not re-issued, due to resource concerns or loss of a grazing season because of timing of re-issuance.
- Livestock markets and ranch economies reactions to changes in demand and competition.
- Recovery efforts for wildfire areas that included temporarily reduced grazing use.

Vacant Allotments - There are currently 12 vacant allotments. These allotments do not have associated Term Grazing Permits and have been ungrazed for several to many years. Some of these are within the Salt Lake and Davis County watersheds and were left vacant to protect public supply watersheds. Three of the Allotments in the Eastern Uintas Management Area were vacated in the past with the understanding that they would be left vacant to provide habitat for re-introduced bighorn sheep in cooperation with the State of Utah Division of Wildlife Resources. However, none of these allotments have been formally designated as closed. Prior to re-introducing livestock grazing to any of the vacant allotment areas, a site-specific analysis is required under the National Environmental Policy Act. The Alternatives in this FEIS include a range of options for vacant allotments from closing them all to maintain benchmark areas in ungrazed condition and provide habitat for bighorn sheep, to leaving them all open to be considered in the future for re-introduction of grazing after site-specific analysis. Appendix I displays the names, total allotment acreages, current status (vacant or active), and status by Alternative for all Allotments in the Wasatch-Cache National Forest.

Current Condition and Trend

Rangeland condition and trend is reported annually by Allotment. Where actual monitoring data is not available, condition and trend are to be estimated. Table RN-3 was presented in the DEIS and shows a summary of range conditions and trends, for years 1993 and 1999, of riparian and upland rangelands with Forest Plan management objectives.

Important Note: A review of these figures during development of the FEIS showed that reporting across the Forest has been uneven from Ranger District to Ranger District. Some Districts did not estimate condition or trend where no actual monitoring data was available. In order to develop estimates of forest-wide consequences of Alternatives, (in which acres in unsatisfactory condition are removed from "suitable" acres), we extrapolated from those Districts where monitoring had been conducted and estimates had been made. Forest-wide, a total of 16,200 capable acres of uplands and 2,100 capable acres of riparian were estimated to be "not meeting or moving toward" objectives (i.e. in unsatisfactory condition).

Table RN-3. Rangeland Condition and Trend

Setting	Status in Relation to Forest Plan Objectives	1993 Acres	1999 Acres
Riparian	Undetermined Condition	4,952	5,254
	Estimated Meeting	18,014	18,014
	Verified Meeting	488	748
	Estimated Moving Toward	1,355	977
	Verified Moving Toward	30	140
	Estimated Not Meeting	1,723	1,296
	Verified Not Meeting	150	120
	Total Acres w/ Management Objectives	21,760	21,295
Uplands	Undetermined Condition	232,421	109,317
	Estimated Meeting	150,827	337,931
	Verified Meeting	961	1011
	Estimated Moving Toward	28,176	37,778
	Verified Moving Toward	27,499	27,499
	Estimated Not Meeting	13,526	11,076
	Verified Not Meeting	400	400
	Total Acres w/ Management Objectives	221,389	415,695

Source: Forest Service RAMIS and INFRA databases

Rangeland Health Amendment Implementation

Key decision items from the 1996 Rangeland Health FEIS included utilization standards for rangelands in satisfactory condition, ground cover standards, a system for assigning riparian classes, and direction for establishment of key areas for monitoring utilization, riparian green-line status, and other indicators of rangeland health. The intent of the Rangeland Health Amendment management direction was to incorporate these standards for minimum ground cover and maximum utilization into Term Grazing Permits, and then to establish key areas and begin monitoring for utilization, condition, and trend at key areas within the allotments as soon as possible. Implementation of this direction has been accomplished in many but not all allotment areas.

Utilization Standards for Upland Vegetation Types in Satisfactory Condition - Currently, maximum utilization standards for satisfactory condition upland, aspen, and crested wheat-grass vegetation types have been incorporated into Term Grazing Permits. The 1996 Rangeland Health Amendment to the Forest Plan did not address rangelands in unsatisfactory condition.

Utilization Standards for Riparian Classes 1, 2, and 3 –Currently, these values have been assigned to 72 Wild and Scenic River candidate streams and rivers as a part of that inventory process (See Revised Forest Plan Appendix VII). Remaining streams still need to be classified and the accompanying standards implemented in those riparian areas.

Minimum Ground Cover Standards – These standards are expressed as a minimum acceptable percentage of what the potential undisturbed ground cover would be for various vegetation types (See Revised Forest Plan Appendix VII). Currently, the value for potential undisturbed ground cover has been established for a number of vegetation types from a few specific locations. More site-specific potentials may be developed in the future during Allotment Management Plan revisions.

Monitoring of Utilization, Condition, and Trend –Use of the Rangeland Health Amendment standards for monitoring is applied to designated "key species" located at designated "key areas" (FSH 2209.21). Key areas were established on all allotments on the Forest during the 1960's to assess conditions and to establish long-term trend studies. Most of these are still usable as key areas but validation to ensure these areas meet the current definition of a key area is a necessary step. The method for assessing rangeland vegetation and soil conditions in the 1960's (Parker 3-step) has been replaced with new methods (nested frequency). These new methods have been established on approximately 50% of allotments. Of these allotments, 80 % are currently being monitored for utilization and long-term condition trends. Of the allotments without validated key areas, 40% have been studied using other methods to determine conditions and long-term trends. The Revised Forest Plan includes an Objective specifically focused on improving rangeland grazing administration.

Environmental Consequences

Background

Needs For Change related to rangeland resources were identified in Chapter 1 of this document. Capable and suitable rangelands must be identified and forage production/potential outputs estimated. Restoration of rangelands in unsatisfactory condition and the risks of livestock/ wildlife disease transmission need to be considered in revised plan management direction. A number of allotments are currently vacant, bringing into question the future of these allotments. To address all of these needs, a range of potential modifications to Forest Plan direction are displayed in the Alternatives, and the effects of those potential modifications are analyzed in this section.

General Effects- Common to All Alternatives

This section addresses how various types of management direction and activities can affect livestock grazing in terms of rangeland capability, suitability, and productivity. The general effects described here are, for the most part, common to all of the alternatives.

Forest Plan Direction and Implementation

Building upon the 1996 Wasatch-Cache National Forest Rangeland Health Forest Plan Amendment, Forest Plan revision management direction for all alternatives has been developed to maintain or improve rangeland conditions on National Forest administered lands. Direction occurs at both the Forest-wide and Management Area levels. Goals and objectives have been designed to achieve desired rangeland conditions over the long term, and to maintain or restore sustainable levels of forage production, livestock use, and ecosystem functions and processes. Furthermore, management direction for other resource programs—such as vegetation, soil, water, riparian, aquatic, wildlife, and recreation—provide additional guidance and resource protection in an integrated manner.

For the 5% estimate of capable areas where present rangeland conditions are not meeting objectives, conditions are expected to improve under all alternatives with full implementation of Forest Plan management direction. However, the rate of improvement will vary by alternative.

Grazing Permits and Administration

Livestock use and its associated activities are allowed on open Allotments under the Term Grazing Permit system, within all Management Prescription Categories except in Research Natural Areas (prescription 2.4) and Developed Recreation Areas (prescription 4.5). The authority to protect, manage, and administer National Forest System lands for range management must be in accordance with the terms and conditions specified in Parts 1 through 3 of the term grazing permit issued for a specified area. Grazing administration responsibilities do not vary by alternative, as they are determined by existing policy (FSM 2230) and annual budget priorities. However, recognizing that some areas of the Forest are in unsatisfactory condition, the Revised Forest Plan includes an Objective focused specifically on improving grazing administration to restore these lands to satisfactory conditions.

Capable Rangelands

Capable rangelands are accessible to livestock, produce forage or have inherent forage-producing capabilities, and can be grazed on a sustained yield basis, under typical and reasonable management practices. Capable rangeland acres are the same for all alternatives (see Table RN-1). However some forested lands, if affected by timber harvest or fire, may become accessible and can produce forage. Forage may be produced for 10 or more years before vegetation changes terminate available production or accessibility. These lands are classified as transitory range and are not a part of the capable base. Transitory range is discussed further below under the Effects sections for timber harvest, vegetation/fuels treatments, and fire management.

Suitable Rangelands

Suitability is defined as “the appropriateness of applying certain resource management practices to a particular area of land as determined by an analysis of the economic and environmental consequences and alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.” (FSM 1905) Once capability is determined (see

section titled Rangeland Capability under the Affected Environment section earlier in this Chapter), an assessment of suitability by alternative is conducted to address whether livestock grazing is, or is not, compatible with management direction for a management area's other uses and values, and which if any, other uses would be foregone with livestock grazing. Using the Intermountain Region Protocol: Rangeland Capability and Suitability Determinations for Forest Plan Revisions (USDA Forest Service 1998b) criteria were reviewed and tailored to local conditions for a suitability assessment. Appendix B-9 provides a discussion of suitability criteria used in this analysis and each of the alternatives includes a determination of rangeland suitable acres.

The Forest has been analyzed for being suitable to grazing and browsing (to include wildlife) as required in 36 CFR 219.20. This analysis considered other uses or values of the area. All lands, with the exception of talus slopes, water and rock, are suitable for grazing and browsing by wildlife. Suitable range expected to be used by wildlife is the same for all alternatives.

Criteria for rangeland suitability evaluation for livestock grazing include several that apply to all alternatives while other criteria vary by alternative. Existing and proposed Research Natural Areas (RNA's) and/or RNA additions are not considered suitable rangelands in any alternative. Also, existing administrative sites and developed recreation sites are not considered suitable, due to the incompatibility of uses. Given that livestock already do not graze these areas, their subtraction from suitable acres has no effect on current levels of grazing.

Rangeland Forage Productivity

In many cases, when shrub vegetation communities are moved to younger age classes, productivity for grazing herbivores may increase. A "flush" of forbs and graminoids often follows wildland or prescribed fire, and in some cases emergency recovery activities will actually establish a grass cover to protect soil productivity and watersheds from damage following severe wildfires. Productivity increases can be especially dramatic when older age-class sagebrush and other mountain brush types are impacted by wildland or prescribed fire. The increase in grass and forb production in these cases can last for many years or even decades. The magnitude of these increases in productivity will depend directly on site-specific conditions as well as the potential for wildland or prescribed fire to occur under a given alternative. For the purposes of this analysis, we assume a similar likelihood of unwanted wildland fire in these vegetation types for all of the alternatives.

Direct and Indirect Effects by Alternative

Rangeland Suitability.

Determination of rangeland capability is an assessment of an area's ability to provide forage and water for livestock use. In contrast suitability is an assessment of an area's potential conflicts with other resources (alternative uses) and how to resolve them. Capable rangelands within grazing allotments were analyzed using different criteria for grazing suitability by alternative. This analysis considered other uses or values of the area (economic and environmental consequences and alternative uses foregone) and identified areas where grazing may not be

appropriate. Table RN-4 displays total acres of capable rangelands, capable acres within grazing allotments, and the acres subtracted based on suitability criteria by alternative. Some lands within the Forest are incompatible with domestic livestock grazing or do not allow grazing due to alternative uses foregone. These (RNAs, developed recreation sites) were discussed above and are common to all alternatives.

Table RN-4. Rangeland Suitability Acres by Alternative (numbers rounded to the nearest 100)

Criteria	Alt1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Total Forest Capable Acres [1]	369,900	369,900	369,900	369,900	369,900	369,900	369,900
Capable Acres Within Open (Active and Vacant) Allotments [1]	302,700	302,700	302,700	302,700	302,700	302,700	302,700
Developed Recreation Sites Within Open Allotments Subtracted [1]	-2,700	-2,700	-2,700	-2,700	-2,700	-2,700	-2,700
Remaining Capable Acres Within Open Allotments	300,000	300,000	300,000	300,000	300,000	300,000	300,000
Capable Acres Within Vacant Allotments Closed for Maintaining Resource Conditions Subtracted[2]	-10,400	-10,400	0	0	0	0	-2,500
Capable Acres within Vacant Allotments Closed For Bighorn Sheep Subtracted [3]	-7,800	-7,800	0	0	0	-7,800	-7,800
Uplands Acres Not Meeting FP Objectives Subtracted[4]	-16,200	-16,200	0	0	0	-16,200	0
Riparian Acres Not Meeting FP Objectives Subtracted [4]	-2,100	-2,100	-2,100	0	0	-2,100	0
Acres for Cutthroat Trout Management Subtracted[5]	0	-26,000	0	0	0	0	0
Total Suitable Acres	263,500	237,500	297,900	300,000	300,000	273,900	289,800
Percent of Total Capable Within Open Allotments After Developed Recreation Sites Are Subtracted	87.0%	78.5%	98.4%	99.1%	99.1%	90.5%	95.7%

[1] Information from Forest Corporate GIS database
[2] Alternatives 1 and 2 close all vacant allotments and Alternative 7 closes those vacant allotments (Clegg, Hardscrabble, Mill Canyon, Shingle Mill and Wright) within the Salt Lake and Davis County watersheds for general watershed condition maintenance
[3] Vacant allotments (Burro Peaks, Thompson Peak, and West Beaver) closed for bighorn sheep health purposes. This would reduce suitable acres by 7,800 acres. In addition, Alternatives 1, 2, and 6 allow for the closure of Gilbert Peak, Henry's Fork-Hessie Lake, & Red Castle allotments should those permits be voluntarily waived without preference. This would reduce suitable acres by an additional 9,500 acres. Alternative 7 allows for these, as well as East Fork Blacks Fork, West Fork Blacks Fork, East Fork Bear River, and Stillwater allotments to be closed if permits are voluntarily waived without preference. This would reduce suitable acres by another 9,800 acres, should all these permits be waived.
[4] Information extrapolated from monitored areas (INFRA database) and applied forest-wide.
[5] Entire watershed acres removed within allotments with both known cutthroat trout populations and reported riparian acres in unsatisfactory condition.

A determination of suitability by alternative was completed to address whether or not livestock grazing is compatible with other uses and management direction identified in each alternative and uses that would be foregone with livestock grazing. This suitability determination excluded lands outside open allotments (both active and vacant) because alternative uses forgone were addressed in the past to a large degree, as well as in the 1985 Forest Plan. Domestic livestock

have been removed from culinary and other municipal watersheds to maintain water quality, from developed recreation sites to avoid conflicts and to maintain human health, safety of livestock, and Research Natural Areas (RNAs) to protect the values for which these areas were established. Because no new developed recreation sites have been identified through this Forest Plan revision, and because proposed RNA expansions are outside existing allotments, no additional conflicts were noted for these considerations. As noted in Table RN-4, all alternatives remove 2,700 acres of developed recreation sites currently within open allotments leaving a total of 300,000 capable acres.

Vacant Allotment Disposition- Alternatives 1 and 2 remove 10,400 capable acres by closing all vacant allotments to maintain ungrazed resource conditions, and protect watersheds. These Alternatives also close 7,800 capable acres in the Eastern Uintas Management Area for bighorn sheep habitat. Alternative 6 closes only the vacant allotments for bighorn sheep habitat (7,800 capable acres). Alternative 7 closes vacant allotments in Salt Lake and Davis Counties (2,500 capable acres) for watershed protection, and 7,800 capable acres in the Eastern Uintas Management Area for bighorn sheep habitat. Alternatives 4 and 5 retain vacant allotments for future site-specific evaluation.

Unsatisfactory Condition Lands Disposition- Alternatives 1, 2, and 6 remove 16,200 acres of uplands and 2,100 acres of riparian areas in unsatisfactory condition (i.e. not meeting or moving toward objectives) to restore these lands. Alternative 2 also removes 26,000 acres from watersheds with both known Bonneville and Colorado River cutthroat trout and unsatisfactory riparian conditions. Alternative 3 removes only the 2,100 acres of unsatisfactory condition riparian areas for restoration. Alternative 7 retains capable acres in unsatisfactory condition as suitable, but adds a guideline for lower forage utilization (30-40% rather than 50%) on these areas to restore these lands. Alternatives 4 and 5 retain all capable acres except those within developed recreation sites as suitable.

Effects of Suitability Determinations

Closure of vacant allotments provides ecological benefits including maintenance of watersheds, maintenance of ungrazed resource conditions for benchmarks, and reduced risk of disease transmission from domestic sheep to bighorn sheep. Given that the Allotments are currently vacant, there is no immediate or direct effect on permittee operations or community economies from these allotment closures. It is also important to note that experienced budget levels in recent years have been inadequate to complete site-specific analyses on active allotments, making vacant allotments an even lower priority for analysis. Even in alternatives where vacant allotments are left open, it is highly unlikely that resources would be available to conduct the required site-specific analysis for re-introducing livestock grazing. Therefore, the short-term on-the-ground consequences of these alternatives would be similar to closure- i.e. the vacant allotments would remain in ungrazed condition. Given this, closure of vacant allotments is considered only as a long-term effect. Alternatives 1 and 2 provide the most long-term ecological benefit closing all vacant allotments. Alternative 7 provides somewhat less long-term ecological benefits than 1 and 2 because it focuses closures only on Salt Lake and Davis County watersheds and on the bighorn sheep habitat in the Eastern Uinta Mountains Management Area. Alternative 6 provides the long-term benefits for bighorn sheep habitat but not for the other

vacant allotment areas. Alternatives 3, 4, and 5 do not close vacant allotments thus not providing for long-term benefits although as explained above, short-term the allotments would likely continue to remain in ungrazed condition accruing those benefits for the short-term.

Effects of **removal of areas in unsatisfactory condition** from suitable acres would vary because of site-specific factors. Areas in unsatisfactory condition that can be easily avoided through livestock herding, and/or salting would be most likely to improve in ground cover and species composition over the long-term. Areas that are fenced or can be fenced would also be likely to improve if removed from livestock grazing. Areas in unsatisfactory condition that are relatively small, scattered, or in locations where it is difficult to avoid grazing without expensive structural improvements (fence construction) would be much less likely to improve. Given that acres for this analysis were extrapolated forest-wide from areas with monitoring, the relative proportions of the above conditions are unknown. There would likely be a range of improvement probability that can only be predicted with site-specific assessment. Alternatives 1, 2, and 6 would result in this range of improvement on a total of 18,300 upland and riparian acres and Alternative 3 would result in 2,100 acres with a range of improvement on riparian acres.

Alternative 7 (and the Revised Forest Plan) includes a **forage utilization guideline** for lower (30-40%) allowable use on areas in unsatisfactory condition rather than removing these areas from suitability. Recent literature (Holechek, et al. 2001, Holechek 1988) indicates that sagebrush grasslands, mountain shrublands, oak woodlands, and pinyon-juniper woodlands can receive 30-40 percent utilization. Holechek, et al.(2001) noted that rangelands in poor (unsatisfactory) condition should receive the lower utilization level when grazed during active forage growth. With implementation of this Guideline, areas of both upland and riparian vegetation in unsatisfactory condition would improve with riparian areas restored more quickly than uplands. Improvement would be more consistent overall than in Alternatives 1, 2, 6, and 3 because a lower utilization standard could be applied to all the areas more easily than total avoidance of the areas. However, even this approach's success will depend on diligence in herding, salting, range improvement maintenance, and monitoring of utilization.

Alternatives 4 and 5 do not remove areas in unsatisfactory condition nor do they implement a lower forage utilization allowance for these areas. Some improvement of these areas is expected through implementation of management direction from the 1996 Rangeland Health Amendment, however it is expected that it would be more gradual and less consistent than in any of the other Alternatives.

Potential <u>Future</u> Changes in Suitable Acres- In addition to the closure of vacant allotments in the Eastern Uintas Management Area (Burro Peaks, Thompson Peak, and West Beaver) for bighorn sheep habitat, Alternatives 1, 2, and 6 allow for the future closure of Gilbert Peak, Henry's Fork-Hessie Lake, & Red Castle allotments should those permits be <u>voluntarily</u> waived without preference. This would reduce suitable acres by 9,500 acres. Alternative 7 allows for these, as well as East Fork Blacks Fork, West Fork Blacks Fork, East Fork Bear River, and Stillwater allotments to be closed if permits are <u>voluntarily</u> waived without preference. This would reduce suitable acres by 9,800 acres (for a total of 19,300 acres) with the associated benefit being reduced risk for disease transmission from domestic sheep to bighorn sheep as well as watershed protection and establishment of ungrazed benchmarks. Given that this would be

based strictly on a voluntary action initiated by permit holders, net effects on permittee operations would be expected to be positive. (Otherwise the permittee could choose not to take this action). These wildlife and ungrazed resource condition values are foregone in Alternatives 3, 4, and 5.

Estimated Grazing Outputs

For the following discussion, a distinction must be made between outputs and permitted numbers. The NFMA requires projections of outputs generally expressed as Animal Unit Months (AUMs). Decisions made in the Forest Planning process do *not* include issuance of Term Grazing Permits nor do they include decisions about stocking of allotments (i.e. permitted numbers). These decisions must be based on very specific site-dependent information and are made through either Allotment Management Planning or Term Permit Issuance or Modification. Therefore, the projections displayed here are for outputs only. Permitted number changes are dependent on other decision-making processes.

For the 10-year period 1991 to 1999, grazing outputs as AUMs ranged from a high of 69,919 to a low of 30,198. While it is recognized that actual use can vary as displayed in Table RN-2, and that permitted numbers have been consistently higher than actual use, the averages of actual use have been used in this analysis to estimate outputs. These estimates are more realistic than either the high or the low ends of the range observed over the last 10 years or the total permitted numbers.

With an average of 58,900 AUMs (rounded from Table RN-2) produced during that period on approximately 281,850 (rounded) suitable acres, the average acres per AUM were approximately 4.78. (Suitable acres were adjusted for these calculations to exclude the 18,152 acres in vacant allotments. These do not currently produce outputs nor are they expected to within the planning period.) Suitable acres by alternative along with this average AUM output per acre have been used in this analysis to estimate grazing outputs by Alternative shown in Table RN-5.

Implementation of the removal of capable acres in unsatisfactory condition from grazing in Alternatives 1, 2, 3, and 6 may or may not result in an actual reductions in livestock numbers but are projected to reduce outputs. This is because diligent herding, salting, range improvements, and adjustments to seasons of use may be employed to remove grazing from these areas with the same or reduced numbers of livestock. In Alternative 7, outputs are projected at a reduced level for those acres in unsatisfactory condition proportional to the reduced allowable utilization of 30-40% (compared to 50% allowed on all other suitable acres). FEIS Appendix B-9 displays calculations for these outputs. In Alternatives 4 and 5, outputs are expected to be similar to the average of the last 10 years because no areas are removed from grazing and forage utilization is allowed at current levels (50%) from the 1996 Rangeland Health Amendment. Effects of these output changes on economic and social conditions are discussed in the Social and Economic Effects section later in this FEIS.

Table RN-5. Estimated Authorized Livestock Grazing Outputs by Alternative

Livestock	10-Year Average AUMs [1]	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7 [2]
Suitable acres	281,850	263,550	237,550	279,750	281,850	281,850	263,550	281,850
Cattle	34,300	31,980	28,820	33,940	34,180	34,180	31,980	33,560
Sheep	24,600	23,160	20,870	24,580	24,750	24,750	23,160	24,300
Total	58,900	55,140	49,690	58,520	58,930	58,930	55,140	57,860

Numbers are rounded to nearest 10. Cattle are 58 percent of total AUMs; Sheep are 42 percent of total AUMs

[1]Average Authorized AUMS
[2] For Alternative 7, 4.78 acres/AUM on satisfactory range, 6.70 acres/AUM on unsatisfactory range, for all other Alternatives, 4.78 acres/AUM on all suitable acres.

Effects on Grazing from Timber Harvest

In many cases, when plant communities are moved to younger age classes, productivity for grazing herbivores will be increased temporarily. A "flush" of forbs and graminoids can accompany vegetation management activities such as timber harvest depending on a number of site-specific factors. The type of harvest, degree of overstory removal, treatment of slash, and individual site productivity or habitat type affect the degree to which increases in forage production may occur. Treatment areas can result in some increase in forage production. While livestock can use this, suitability is not altered because of the transitory nature of such increases. Use of these areas may improve distribution of livestock grazing in other areas resulting in less forage utilization, less reduction in ground cover, and less likely changes in species composition from livestock grazing. The forest-wide nature of this analysis does not allow us to identify exactly where these actions would take place, but over a 10-year period aspen and/or conifer treatment would be approximately 15,500 acres in Alternative 5; 13,000 acres in Alternative 4; 7,500 acres in Alternative 3; 6,500 acres in Alternative 2; 5,000 acres in Alternatives 6 and 7; and no acres in Alternative 1. These relative acreages provide an estimation of the magnitude of the effects described for timber harvest.

Effects on Grazing from Vegetation/Fuels Treatment

Regardless of alternative, fuels treatments (primarily in oakbrush in the wildland urban interface) would have a minimal effect, if any, on livestock grazing. The removal of woody fuels to reduce fire hazard can potentially increase forage production for a short period, but is not expected to increase overall or long-term grazing capacity. In addition, fuels management will not require the removal of livestock from areas for any extended period of time and, therefore, will not require a reduction in livestock numbers during treatment.

Effects on Grazing from Recreation

Effects on livestock grazing from recreation activities do not vary by alternative because the primary differences in alternatives for recreation are in winter motorized/nonmotorized allocations which have no relevance to livestock grazing operations. As described in Effects Common to All Alternatives, domestic livestock grazing is prohibited in developed recreation sites under all alternatives. Many but not all developed recreation sites are fenced to exclude livestock grazing. There are approximately 2,650 (rounded to 2,700) acres of developed recreation sites in existing allotments and these acres are removed from suitable range Table RN-4). Currently Annual Operating Plans for livestock grazing direct permittees to manage livestock to avoid these areas. As recreation increases on the Forest along with population growth, there is expected to be an increased amount of interaction between undeveloped recreation uses and livestock. Effects include potential changes in livestock distribution in areas within allotments and heavily used for undeveloped recreation (such as along road corridors where camping and/or fishing occur and where ATV users create new routes that are adopted by others). Recreationists are known to leave gates open and this may result in livestock movement into areas where rest is planned. Complaints to the Forest Service and permit holders from recreationists who do not like the looks, sounds, and smells of livestock grazing along trails and other popular recreation attractions are expected to continue and may increase as recreation user densities increase. However, none of these effects are expected to vary by alternative in this Forest Plan Revision. Some motorized recreation users are expected to complain because livestock grazing permits often include allowance for motorized access to maintain fences and water developments while the general public is not allowed motorized access to the same areas. This would likely be the most frequent under Alternative 1 because of motorized trails closed to public access within areas recommended for Wilderness. Other Alternatives would show little relative difference in this effect.

Effects on Grazing from Wildlife Management

Discontinuing domestic sheep grazing in overlapping areas used by domestic sheep and bighorn sheep in the Eastern Uinta Mountains and Western Uinta Mountains Management Areas would reduce the risk of disease being transmitted from domestic to bighorn sheep. Alternatives 1, 2, 6, and 7 remove 7,760 capable acres from suitable range by closing the three currently vacant allotments (Burro Peaks, Thompson Peak, and West Beaver) to reduce disease risks (Table RN-4). Since these allotments are already vacant, there is no direct effect on current grazing operations or outputs. There is an indirect effect on potential future grazing outputs because these allotments would not allow potential future stocking with domestic livestock.
In addition to the vacant allotments above, Alternatives 1, 2, 6 and 7 would discontinue domestic sheep grazing on three sheep allotments (Gilbert Peak, Henry's Fork-Hessie Lake, and Red Castle) that overlap current bighorn sheep habitat *if* permits were *voluntarily* waived without preference. This would reduce suitable acres by an additional 9,500 acres for a total reduction of 17,300 capable acres. Alternative 7 would extend the area protected further for bighorn sheep to four additional allotments (East Fork Blacks Fork, West Fork Blacks Fork, East Fork Bear River, and Stillwater) immediately to the west, again *if* those permits were *voluntarily* waived without preference reducing suitable acres by about 9,800 acres for a total of 27,100 acres. Subtraction of these areas from suitable rangelands would have a long-term effect on overall potential

grazing outputs for domestic sheep. Because this action would be a result of a voluntary choice made by individual permit holders, it is expected that before they would take such an action, they would have weighed the potential impacts to their operations and identified a net benefit. Otherwise they would not likely choose to take this action.

Desired future conditions for vegetation developed in the 1996 Rangeland Health Amendment and described in the Revised Forest Plan as well as those to be developed site-specifically for individual grazing allotments take wildlife habitat needs into account. To achieve these conditions, grazing standards and guidelines are also contained in the Revised Forest Plan. Compliance with these will have some effects on livestock grazing operations in the form of required monitoring of utilization, and movement or removal of livestock when utilization standards are reached.

Effects on Grazing from Aquatic and Semi-aquatic Species Management

Alternative 2 removes approximately 26,000 acres of 6th order watersheds within seven allotments (Blacks Fork, Gilbert Creek, Logan Canyon, Middle Fork, Poison Mountain, Walker and West Fork Smiths Fork) from the suitable range acres. These watershed have both existing populations of Colorado River or Bonneville cutthroat trout and at least 20 acres of riparian acres identified in the INFRA database as either estimated or verified as not meeting Forest Plan objectives. Effects on livestock grazing in these allotments would be a net reduction in stocking during allotment management plan revisions for these allotments to allow for rehabilitation of theses watersheds. Stocking could be increased upon achievement of site-specific objectives developed to meet needs for these fish populations. No other alternatives remove entire portions of watersheds within allotments.

In Alternatives 1, 2, 3, and 6 about 2,100 acres of riparian habitat not meeting objectives are subtracted from suitable grazing acres to achieve rehabilitation of these areas. This will result in the need for increased herding, salting, and/or fencing of these areas to prevent livestock grazing. Without site-specific information the exact needs for each area are not known. However any of these needs will result in some increase in cost of operations to permit holders either in the form of personnel to herd or costs of fence construction and maintenance. In Alternative 7 only, rehabilitation of these riparian areas is achieved through implementation of a lower forage utilization allowance (30-40% rather than 50%) on the areas. This will require monitoring and movement of livestock upon reaching the lower utilization. Effects on grazing operations will vary depending on site-specific conditions from increased need for herding to possible early removal of livestock from these areas if forage utilization cannot be redistributed to other parts of the allotment. Effects on grazing are expected to be somewhat less than with Alternatives 1, 2, 3, and 6. Alternatives 4 and 5 mitigate grazing impacts to aquatic and semi-aquatic species management on a case-by-case basis as needs are identified site-specifically having the least short-term effect on grazing. However, long-term these alternatives may result in greater pressure to remove grazing because of the slow progress in rehabilitating unsatisfactory aquatic and semi-aquatic habitats.

Effects on Grazing from Soil and Water Resource Management

Closure of vacant allotments is considered a long-term beneficial effect for watershed protection. Alternatives 1 and 2 provide the most long-term benefit closing all vacant allotments. Alternative 7 provides somewhat less long-term benefits than 1 and 2 because it focuses closures only on Salt Lake and Davis County watersheds and on the bighorn sheep habitat in the Eastern Uinta Mountains Management Area. Alternative 6 provides the long-term benefits of vacant allotment closure for bighorn sheep habitat but not for the other vacant allotment areas. Alternatives 3, 4, and 5 do not close vacant allotments thus not providing for these long-term benefits. However because of limited resources available to complete site-specific analyses required for re-stocking, these allotments would likely continue to remain in ungrazed condition accruing those benefits for the short-term.

Reducing or removing livestock grazing from uplands and riparian areas not meeting Forest Plan objectives (desired conditions) is prescribed to allow for relatively more rapid and more certain recovery of soil and watershed conditions. Alternatives 1, 2, 6, and 7 remove 16,200 acres of uplands and 2,100 acres of riparian areas not meeting or moving toward Forest Plan objectives from grazing suitability. The effect on grazing will vary depending on site-specific conditions. Alternative 2 also removes 26,000 capable acres for cutthroat trout habitat/watershed improvement. Alternative 3 removes 2,100 acres of riparian areas from grazing suitablility. Effects on grazing from these removals of areas will vary depending on site-specific factors. Areas that can be easily avoided through livestock herding, and/or salting would only require that increase in personnel and effort. Areas that must be fenced would require both the cost of fence construction and on-going maintenance that can be substantial. Areas that are relatively small, scattered, or in locations where it is difficult to avoid grazing would be an on-going problem for grazing operations and are much less likely to improve. Given that acres for this analysis were extrapolated forest-wide from areas with monitoring, the relative proportions of the above conditions are unknown. There would likely be a range of costs to grazing operations that can only be predicted with site-specific assessment. Alternatives 1, 2, and 6 would result in this range of costs for a total of 18,300 upland and riparian acres and Alternative 3 would result in 2,100 acres with a range of these costs for operations on riparian acres.

Effects on Grazing from Special Designations

There would be no effect on livestock grazing from special designation areas. Proposed Research Natural Areas additions are outside existing allotments. In addition, areas proposed as Special Interest Areas with portions in existing allotments, were identified where existing livestock grazing would not affect the values of those areas and where designation would not effect the ability to continue existing grazing practices.

Effects on Grazing from Fire Management

Prescribed fire within active allotments would require one year of rest prior to prescribed fire use and generally two additional years to achieve desired conditions following prescribed fire. This would ensure that successful regeneration of the shrub and tree layers occurs where aspen regeneration is a critical component. The effects of this required rest on grazing operations will

vary depending on the site-specific location of burn units in relation to allotment pastures and depending on timing of the burns across a given landscape. In most cases pasture rotations and/or riding and herding can be used to control livestock use of the burned units. This may require a temporary change in the grazing system including shortened seasons of use and or intensified livestock management that will effect grazing operations. At the same time, prescribed fire is expected to increase forage production in aspen and sagebrush communities and to increase the amount of transitory range in areas where conifers are temporarily removed from the overstory. This means that for areas burned later in the decade, the areas already burned and recovered can provide forage that will hold livestock longer which may allow for more normal seasons of use and less need for intensive herding. The relative magnitude of these effects is directly related to the number of acres and vegetation cover types treated with prescribed fire in a given alternative.

For the aspen and aspen-conifer vegetation types, Alternative 2 treats the most of any alternative with approximately 8,000 acres per year (Table VEG-4). Alternatives 3, 6 and 7 treat approximately 3,200 acres of these types per year and Alternatives 4 and 5 treat approximately 720 acres per year. Alternative 1 does not allow prescribed fire and would treat no acres. While not all of these aspen treatment acres are likely to be in active allotments, where they are, livestock grazing will be limited until aspen reach an average height of 6 feet. As forage production increases following treatment, permitted livestock numbers would not increase because of the transitory nature of these increases. Over the longer term, and later in the decade, authorized numbers may trend more toward permitted numbers in relative proportion to acres treated through fire, and range conditions would likely improve because of better distribution and lighter use on available forage.

A majority of the sagebrush vegetation types have high shrub canopy cover because of fire suppression and/or heavy grazing pressures in the past. As a result forage production is depressed below potential for the sites. Prescribed burning of sagebrush types will require pre- and post treatment exclusion of grazing to both build up fine fuels and assure establishment of a forb-grass under-story. Once established, however, sustained utilization of the increased browse can occur for many years, creating the potential for increases in total forage available. The magnitude of the increase will be proportional to the amount of sagebrush and mountain brush type vegetation treatments by alternatives. Alternative 2 treats the most with approximately 4,000 acres of sagebrush and/or pinyon-juniper per year (Table VEG-4); Alternative 7 treats 3,000 acres per year; Alternatives 3 and 6 treat 2,000 acres per year; Alternatives 4 and 5 treat 1,000 acres, and Alternative 1 treats no acres. Most but not all of these sagebrush and pinyon-juniper acres are likely to be in active allotments. As forage production increases following treatment, permitted livestock numbers would not increase because of the transitory nature of these increases. However authorized numbers may trend more toward permitted numbers in relative proportion to the acres improved. And, like the aspen communities, range conditions would likely improve because of better livestock distribution and lighter total use on available forage.

Effects on Grazing from Management of Recommended Wilderness

There is no direct effect on grazing or livestock operations from interim management of those areas recommended for wilderness. Motorized access associated with grazing in these areas would continue to be authorized in term grazing permits, until such time Congress acts on these wilderness recommendations. There may be some indirect effect on grazing operations in the form of complaints from recreationsists who believe grazing should be curtailed or eliminated in areas recommended for wilderness.

Cumulative Effects

The area of consideration for cumulative effects for rangeland use is the entire Bear River Range (both Wasatch-Cache and Caribou National Forests), the Wasatch Range, including the Wellsville Mountains south to the Mount Nebo area (Wasatch-Cache and Uinta National Forests) and the Uinta Mountains (Wasatch-Cache and Ashley National Forests). Figure RN-1 shows the area currently occupied by open range allotments (both active and vacant) on these forests. There is additional grazing on adjacent lands administered by the Bureau of Land Management as well.

Many grazing permit holders depend on allotments administered by the Forest Service and Bureau of Land Management to provide a portion of their year-round grazing operations. The Wasatch-Cache National Forest will continue to play a role in supporting livestock operations. Overall, a slight decline in the demand for livestock grazing can be expected over the life of this plan (short term), as private land development, higher property values, and conflicts between livestock operations and adjacent urban recreation uses increase.

Over the last two decades, there has been a decline in the actual use of forage authorized under term grazing permits. This trend is expected to either plateau or continue. Livestock operation costs are expected to continue rising, and livestock market price fluctuations—in what has become an international market—will continue to occur. As result, operation economies of scale will likely become more important. The number of small livestock operators may become fewer in number, as base properties or livestock are sold for financial reasons or if younger generations choose other occupations. As a result, the number of grazing permit holders on the Forest could become fewer. The remaining permit holders could potentially have larger livestock holdings and greater numbers of permitted livestock. The combining of some allotments could occur as a part of this process, thus increasing the number of pastures available for use during the grazing season. This situation would allow for greater seasonal management flexibility and shorter pasture grazing durations. To achieve a sustainable level of forage production and properly functioning conditions under any alternative, a significant amount of sagebrush will need to be brought to younger age classes by treatment. Otherwise, livestock forage production can expect further declines with the continued declines in sagebrush under-story vegetation.

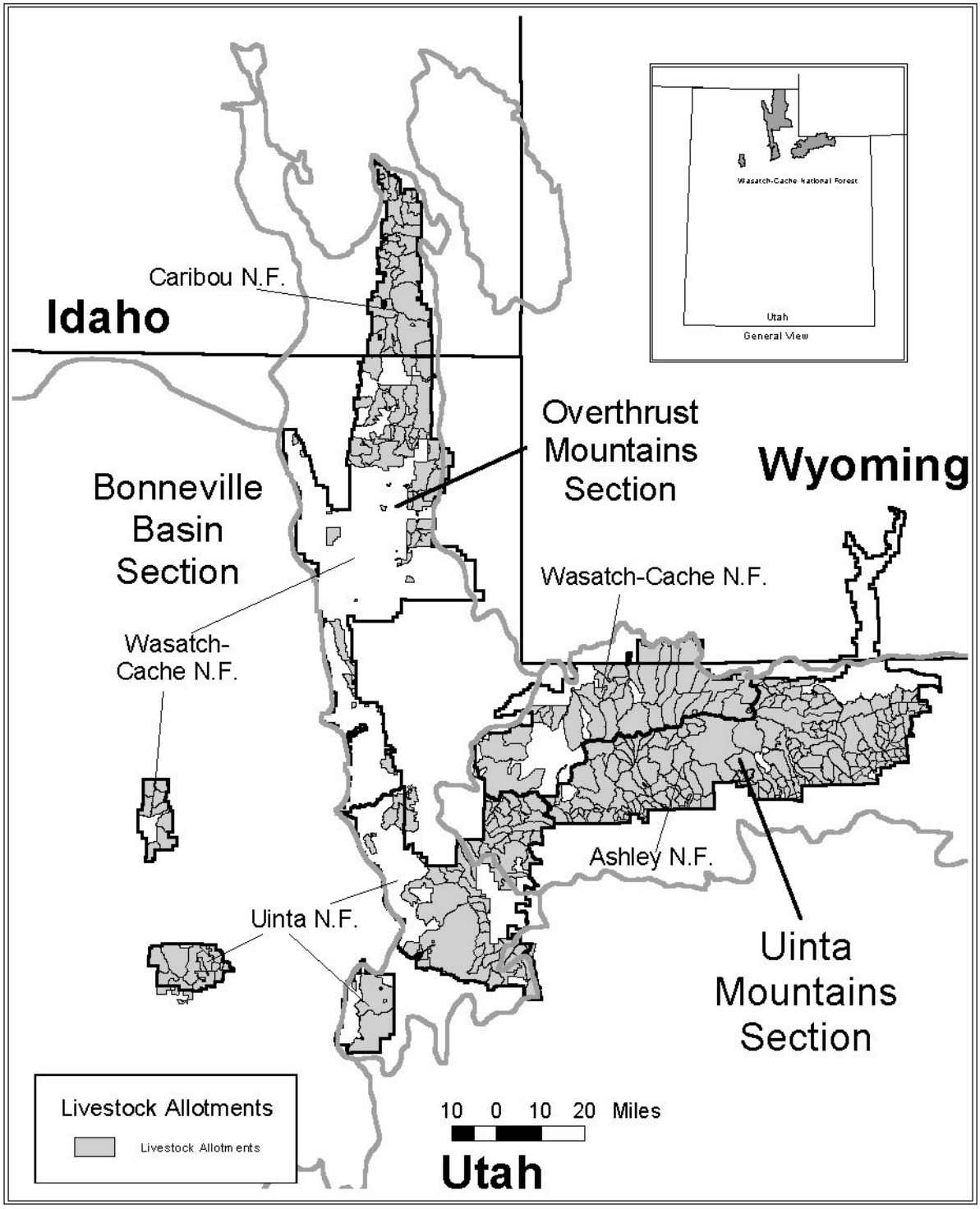

Figure RN-1. Open Allotments (Active and Vacant) on the Caribou, Wasatch-Cache, Ashley, and Uinta National Forest portions of the Bonneville Basin, Overthrust Mountains, and Uinta Mountains Ecological Sections.

There will likely be a net loss of open space and in some cases, a loss of big-game winter and spring ranges, as ranches are sold and subdivided. These conditions will likely continue to occur in Cache, Summit, and Tooele Counties. Morgan and Rich Counties could experience this situation to a lesser extent, depending on the level of recreation and second home growth experienced. As a result, marginal winter habitat may be used more frequently by big game, which may increase localized competition between livestock and wildlife on private lands.

Uinta Mountains. The Wasatch-Cache, Ashley, and Uinta National Forests currently manage approximately 1.7 million acres within the Uinta Mountains Subsection. Of these acres, approximately 95 percent are currently in open allotments (88 percent in active, open allotments). The Wasatch-Cache National Forest currently has nearly 509,000 acres of open allotments in the Uinta Mountains portion of the Forest. Of these, just less than 465,000 acres are currently active, while nearly 44,000 acres are currently vacant. These vacant allotments would be closed in Alternatives 1, 2, 5, 6, and 7, but would remain open in Alternatives 3 and 4. In addition about 39,000 acres of allotments would be closed only if permits are voluntarily waved without preference in Alternatives 1, 2, and 6 and nearly 130,000 acres in Alternative 7. The Ashley National Forest currently has over 960,000 acres of their portion of the Uinta Mountains in open allotments (slightly more than 890,000 acres in active, open allotments and an additional 70,000 acres in open, but vacant allotments). The Uinta National Forest has 166,000 acres of active, open allotments on the Uinta Mountains portion of the Forest.

Wasatch Mountains (including the Bear River Range and Wasatch Range). The Caribou, Wasatch-Cache and Uinta National Forests currently manage over 1.4 million acres within the Wasatch Mountains Subsection. Of these acres, approximately 69 percent are currently in open allotments. The Wasatch-Cache National Forest currently has about 306,000 acres of open allotments in the Wasatch Mountains portion of the Forest. Of these, 300,000 acres are currently active, while nearly 6,000 acres are currently vacant. These vacant allotments would be closed in Alternatives 1 and 2, but would remain open in Alternatives 3-7. The Caribou National Forest currently lists about 260,000 acres of their portion of the Bear River Range in open allotment. They did not distinguish the active vs. vacant allotments. The Uinta National Forest has more than 414,000 acres of open allotments (402,000 acres active, open and 12,000 acres open, but vacant) on the Wasatch Mountains portion of the forest.

Bonneville Basin. The Wasatch-Cache and Uinta National Forests currently manage approximately 216,000 acres within the Bonneville Basin Subsection. Of these acres, approximately 69 percent are currently in open allotments. The Uinta National Forest currently has nearly 100,000 acres of active open allotments on the Bonneville Basin portion of the Forest. The Wasatch-Cache National Forest currently has about 48,000 acres of open allotments in the Bonneville Basin portion of the Forest of which nearly 42,000 acres are currently active, while slightly more than 6,000 acres are currently vacant. These vacant allotments would be closed in Alternative 1 and 2, but would remain open in Alternatives 3-7.

Effects of Activities on Livestock Grazing. In the past, activities such as fire, timber harvest, recreation development and uses, and range improvements have all affected the ability of livestock to graze on the forest and the quality of forage. Fire in tree-dominated plant communities and timber harvest temporarily increased available forage for livestock use,

creating “transitory range”. These activities removed the overstory, which typically increased the production of forage in the understory. Fire in sagebrush and other rangeland plant communities also temporarily increased forage production in these stands. Because of fire suppression, many rangelands now have reduced productivity. More recently, with the use of prescribed fire on a very limited basis, some sagebrush communities have increased their productivity; at least until the sagebrush density again competes with the herbaceous component. In the 1960’s the Forest Service took many actions, including herbicide use, plowing, and seeding in sagebrush and juniper or pinyon-juniper stands to increase forage specifically for livestock production.

Topic 8 – Special Designations

Introduction

Special designations refer to areas identified in this forest planning process, with values that could require specific management direction to enhance, recognize, or protect those values. Four kinds of potential designations are covered in this special designations section. These include Research Natural Areas (RNA's, Management Prescription Category (MPC) 2.4), Special Interest Areas (SIA's, MPC 2.7), and Wild and Scenic Rivers (MPCs 2.1-2.3). This special designations section does not include Wilderness (MPCs 1.1-1.4), recommended wilderness (MPC 1.5), undeveloped areas (MPC 2.6) or scenic byways (MPC 2.5). These are considered within other sections of this document.

Laws, Policy and Direction

Each of the categories of allocation within special designations has its own set of legal, regulatory or policy direction.

Research Natural Areas

36 CFR 219.25 - states that forest planning shall provide for the establishment of RNAs. To be identified are examples of important forest, shrubland, grassland, alpine, aquatic, and geologic types that have special or unique characteristics of scientific interest and importance and that are needed to complete the national RNA network.

Forest Service Manual, Title 4063 - provides specific direction concerning establishment and management of RNA's.

Special Interest Areas and Special Areas

Special Interest Areas are meant, "to protect and, where appropriate, foster public use and enjoyment of areas with scenic, historical, geological, botanical, zoological, paleontological, or other special characteristics. To classify areas that possesses unusual recreation and scientific values so that these special values are available for public study, use, or enjoyment" (FSM 2360.2). These areas are designated by law, or may be designated administratively, as special interest areas. Areas so designated are managed to emphasize specific related values. Other uses are permitted in the areas to the extent that these uses are in harmony with the purpose for which the area was designated.

Special Areas are meant, "to protect and manage for public use and enjoyment, special recreation areas with scenic, geological, botanical, zoological, paleontological, archaeological, or other special characteristics or unique values." (FSM 2372).

The primary distinction between these designations, based on the above descriptions from the Forest Service Manual, is that Special Areas have recreation as an underlying value while Special Interest Areas protect and "where appropriate" foster use.

36 CFR 294.1 - states that a Regional Forester (if under 100,000 acres) may designate certain suitable areas other than wilderness or wild areas which should be managed principally for recreation use.

Forest Service Manual, Title 2372 - provides specific direction concerning establishment and management of SA's, and indicates that forest planning may be one means for establishment.

Forest Service Manual, Title 2360 - provides specific direction concerning establishment and management of SIA's. Forest planning may be one means for establishment.

Wild and Scenic Rivers

Wild and Scenic Rivers Act of 1968 - establishes the Wild and Scenic Rivers System, defines Wild and Scenic Rivers, and provides policy for preservation, management, and a process for further designations.

Interagency National Wild and Scenic Rivers System; Final revised Guidelines for Eligibility (1982) - USDA and USDI - provides additional guidance to agencies on how to consider Wild and Scenic Rivers eligibility, suggesting that Wild and Scenic rivers be considered during forest planning.

Affected Environment

Research Natural Areas (RNA's)

The research natural areas (RNA's) on National Forests are protected for the purposes of maintaining biological diversity, conducting non-manipulative research and monitoring, and fostering education. RNA's help preserve the Nation's natural heritage for future generations. The protection afforded RNA's is a critical step in maintaining a range of biological diversity of native ecosystems and species. Because they are protected in a natural state, RNA's also provide valuable opportunities for monitoring of long-term ecological change, and comparison of the effects of resource management activities against unmanaged controls. Research Natural Areas (RNA's) are areas within National Forests that the Forest Service has designated to be permanently protected and maintained in natural condition. These protected natural areas include:

- Unique ecosystems or ecological features
- Rare or sensitive species of plants and animals and their habitat
- High-quality examples of widespread ecosystems

The regional RNA program works within the framework of the National Research Natural Areas Strategy, circulated by the Chief of the Forest Service in July 1993. An effort is being made to

integrate the RNA program fully with other National Forest and Research programs and planning.

Under the current Wasatch-Cache National Forest Land and Resource Management Plan three areas are managed as RNA's. The first two, Red Butte and Morris Creek, were established by the time the forest plan was signed in 1985; Mollens Hollow was established in 1988.

- Red Butte Canyon near Salt Lake City 5140 acres
- Morris Creek adjacent to Farmington Canyon 154 acres
- Mollens Hollow within Blacksmith Fork watershed 1100 acres

These three areas are managed to protect their research values as pristine examples of certain types of ecosystems. No uses are allowed that diminish the natural values of these lands. Potential uses, which are possible but limited on a permit basis, are research, baseline monitoring, or other similar non-destructive or non-manipulative activities.

In 1998 an analysis of Research Natural Area needs was completed for National Forest lands in Utah (Tuhy 1998). These needs were defined for vegetation types that on National Forest lands that are currently lacking for existing RNAs in Utah. The objectives of establishing RNAs are to preserve a wide spectrum of pristine representative areas typifying important forest, shrubland, grassland, alpine, aquatic, geological, and similar natural situations that have special or unique characteristics of scientific interest and importance that, in combination, form a national network of ecological areas for research, education, and maintenance of biological diversity; preserve and maintain genetic diversity; protect against serious environmental disruptions; serve as reference areas for the study of succession; provide on-site and extension educational activities, serve as baseline areas for measuring long-term ecological changes, serve as control areas for comparing results from manipulative research; and monitor effects of resource management techniques and practices" (FSM 4063).

Potential addition
Additional acreage contiguous to the existing Morris Creek RNA is proposed for designation in plan revision. With this 850 added acres, additional elevation range, slopes, aspects, soils and plant communities and dependent species would be represented in the RNA providing a larger and more diverse ecosystem to the RNA.

Special Interest Areas and Special Areas

Currently there are no Special Interest Areas or Special Areas established on the Wasatch-Cache National Forest. During recent forest planning and leadership discussions, the possible appropriateness of applying these categories to certain key areas has been recognized. Areas identified in this draft EIS are noted in Table SD-1 below.

Table SD-1. Potential Special Interest Areas

Area Identified	Value
Lower Logan Canyon (2 areas separated by a road)	Large number of unique and sensitive or endangered plant species. In addition, this area includes the Douglas-fir/Ninebark habitat type identified by Tuhy (1998) as a need for protection within the RNA system.
Lower Red Butte (within existing RNA)	This area has many invasive species, including cheatgrass and several noxious weeds, and provides many opportunities for restoration ecology research as well as environmental education.
Willard Basin	Relic tall forb community as well as Burke's draba populations potentially threatened by recreation use (trespass OHV use).
W.C. Daniels School Forest	Utah State University's education and research forest under special use permit

Potential Research Natural Areas and Special Interest Areas

Some additional areas have recognized values for potential RNA or SIA designation. These areas were not analyzed under any alternative, but could be evaluated through later analyses. Some of these areas are identified below, but others are likely to occur on the Forest.

Ben Lomond Peak, Ogden Ranger District – This area is identified as a potential RNA because it has relic tall forb communities that may be more representative of typical conditions within this vegetation group than other areas on the Forest. Tall forb communities in this area, while likely to have been historically grazed, show little current effects from these uses. Species composition and associated ground cover appear to be relatively undisturbed. Because it is estimated that nearly 50 percent of the tall forb communities on the forest have been significantly altered or lost, it is important to identify areas to protect these ecologically sensitive types.

Western portion of the Deseret Peak Wilderness, Salt Lake Ranger District – This area, which runs from the western Forest boundary in Skull Valley to Deseret Peak, has representative Basin and Range plant communities in relatively undisturbed conditions. This potential Research Natural Area has not been grazed in recent history and communities from low elevation Wyoming big sagebrush to bristlecone and limber pine are present. In addition, there is a potential to research possible cryptogamic soil crusts as well. Access is limited, but these communities provide invaluable reference conditions from which management activities could be compared.

Portions of Tri-Canyon Area, Salt Lake Ranger District – This area could be recognized as a special area with a number of values identified, including relic tall forb communities that have recovered from historical mining, logging and development; value as critical watershed and opportunities to educate about the importance of watersheds for communities; and value as a broad scenic backdrop for communities, as well as outstanding scenery within the area. Because it is so close to the large urban Salt Lake Valley communities, its values are easily accessed and

could be defined in an open public process, highlighted, appreciated and protected for current and future communities.

In addition to those specific areas mentioned above, there is the need and potential for an aspen-dominated research natural area in the Bear River Range, or the Wasatch Range. Because of the history of livestock grazing in the Bear River Range especially, there is a need for an area that would provide a comparison with potential species composition and structure in these aspen communities. Possible areas outside existing allotments are in the Bear River Range near Franklin Basin or in the Wasatch Range in Big Cottonwood Canyon.

Wild and Scenic Rivers

The Wild and Scenic Rivers Act of 1968 was enacted to protect and preserve in their free-flowing condition, certain selected rivers of the nation and their immediate environments. In 1998, the Wasatch-Cache National Forest in consultation with other federal agencies undertook an inventory of the rivers on the Forest to determine whether any might be eligible as wild and scenic rivers (USDA Forest Service 1999c). The inventory made no decision regarding designation, nor does the Forest Service have this authority, one that is usually exercised by the U.S. Congress.

The inventory included 82 rivers that were segmented into 96 river sections (or segments) for analysis. All segments were subjected to a preliminary screening of values, and 54 segments were found that might potentially have at least one outstandingly remarkable value. The identified values of these 54 were then further scrutinized, as was their free-flowing status. Of the 54 segments in the detailed study, 50 were found to be free flowing. Of these 50, 33 were found to possess at least one outstandingly remarkable value and were considered eligible for the National Wild and Scenic Rivers System. These river segments are classified as wild, scenic or recreational based on the amount of development present on each segment.

Since the publication of the DEIS in May 2001, new information regarding Little Bear Creek has changed the eligible segment length from 4.5 miles to 1 mile. The classification of this segment and for White Pine Creek, Spawn Creek, and Bunchgrass Creek were reported erroneously in the DEIS as Wild; these river segments are correctly classified in this FEIS as Scenic.

Since the completion of the inventory, the values identified during that process have been protected, as is required by law and policy. Following the inventory phase of the Wild and Scenic Rivers study process; another study to assess suitability and make recommendations is to be conducted. The suitability study can be completed after revision of this forest plan. The Forest Service is required to protect identified values until a suitability study determines whether a river is suitable or not. Suitable rivers are protected until designated by Congress, or otherwise directed by other legal means.

Table SD-2. Names and Classification of 33 Eligible River Segments

Wasatch-Cache National Forest Eligible Wild & Scenic Rivers		
	River Name and Eligible Segment	Classification
1	Henry's Fork: Henry's Fork Lake to Trailhead	Wild
2	West Fork Beaver Creek: Source to Forest Boundary	Wild within Wilderness Scenic below Wilderness
3	Middle Fork Beaver Creek: Beaver Lake to Confluence with East Fork Beaver Creek	Wild within Wilderness Scenic below Wilderness
4	Thompson Creek: Source to Hoop Lake Diversion	Wild
5	West Fork Blacks Fork: Source to trailhead	Wild within Wilderness Scenic below Wilderness
6	East Fork Blacks Fork: Headwaters to confluence with Little East Fork	Wild
7	Little East Fork: Source to Mouth	Wild
8	Blacksfork: Confluence of West Fork and East Fork to Meeks Cabin Reservoir	Recreational
9	West Fork Smiths Fork: Source to Forest boundary	Scenic
10	East Fork Smiths Fork: Red Castle Lake to trailhead	Wild
11	Hayden Fork: Source to Mouth	Recreational
12	Stillwater Fork: Source to Mouth	Wild within Wilderness Scenic below Wilderness
13	Ostler Fork: Source to Mouth	Wild
14	Left, Right, and East Forks Bear River: Alsop Lake and Norice Lake to near Tralihead	Wild
15	Boundary Creek: Source to confluence with East Fork Bear	Wild
16	High Creek: High Creek Lake to Forest Boundary	Wild
17	Lefthand Fork Blacksmiths Fork: Source to Mouth	Recreational
18	Logan River: Idaho state line to confluence with Beaver Creek	Scenic
19	Logan River: Confluence with Beaver Creek to Bridge at Guinavah-Malibu Campground	Recreational
20	Beaver Creek: South Boundary of State Land to Mouth	Recreational
21	White Pine Creek: Source to Mouth	Scenic
22	Temple Fork: Source to Mouth	Scenic
23	Spawn Creek: Source to Mouth	Scenic
24	Bunchgrass Creek: Source to Mouth	Scenic
25	Little Bear Creek: Little Bear Spring to Mouth	Scenic
26	Main Fork Weber River: Source to Forest Boundary	Scenic
27	Middle Fork Weber River: Source to Forest boundary	Wild
28	Beaver Creek: Source to Forest boundary	Recreational
29	Provo River: Trial Lake to U35 Bridge	Recreational
30	Left Fork South Fork Ogden River: Frost Canyon/Bear Canyon Confluence to Causey	Wild
31	Willard Creek: Source to Forest boundary	Scenic
32	Red Butte Creek: Source to Red Butte Reservoir	Scenic
33	Little Cottonwood Creek: Source to Murray City Diversion	Recreational

Environmental Consequences

Potential RNA additions and SIA establishment

Table SD-3 notes the acres, by alternative, included in each RNA and SIA. Alternatives 1, 2, 6, and 7 provide the most protection to a variety of ecosystems. Alternatives 3, 4, and 5 maintain the existing acres of RNAs and propose no acres of SIAs.

Table SD-3. Acres of Research Natural Areas and Special Interest Areas (rounded to the nearest 100 acres) by alternative.

Designation	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Red Butte RNA	4,650	4,650	4,650	5,500	4,650	4,650	4,650
Morris Creek RNA	1,050	1,050		200	200	1,050	1,050
Mollens Hollow RNA	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Total RNA Acres (MPC 2.4)[1]	6,900	6,900	5850	6,900	6,050	6,900	6,900
Red Butte SIA	850	850	850	0	850	850	850
Logan Canyon SIA	13800	13800	0	0	0	13800	22550
Willard Basin SIA	200	200	0	0	0	200	2200
Daniels Experimental Forest SIA	1700	0	0	0	0	1700	1700
Tri Canyons Special Area	0	17,600	0	0	0	0	0
Total SIA Acres (MPC 2.7)	16,550	32,450	850	0	850	16,550	27,300

[1] These acres include acres mapped as MPC 3.1 or MPC 3.1a within the boundary of the Research Natural Area.

RNA Changes

In Alternatives 1, 2, 6 and 7 additional acreage (an estimated 850 acres) contiguous to the existing Morris Creek RNA is added. With this addition, greater elevational gradient and associated climatic conditions, aspects, soils, plant communities, and dependent species would be represented in the RNA providing a larger and more diverse ecosystem to the RNA. Currently, most of these north-facing slopes are only lightly used, if at all, by recreationists (occasional hikers/climbers). The area has no system roads or trails within it
While the area would be posted as off limits to recreation, this is probably would have little effect on existing use patterns. There is no known research currently being conducted in the area. Prescribed fire as well as wildland fire use would be encouraged as a component of research in order to study the effects of fire on the fire-dependent plant or fire-tolerant plant communities that occur in the area (Gambel oak, quaking aspen, and mountain mahogany).

Alternative 1, 2, 3, 5, 6, and 7 would remove approximately 850 acres from the **Red Butte Canyon RNA** and place those acres in Special Interest Area status because of the high amount of introduced and weedy species that occur. This provides a potential for manipulative restoration ecology research, which is incompatible with RNA direction. Alternative 4 keeps these acres in RNA status.

Alternatives 3, 4, and 5 would not add this acreage as part of the RNA system. Currently, examples of environments within the Wasatch Mountain Range are considered under-represented by Forest Service and Heritage ecologists. In these alternatives, no protected status would exist for monitoring and potential research associated with these environments.

SIA additions
Alternatives 1, 2, 3, 6 and 7 provide SIA management prescriptions for the four areas listed above in different combinations.

The **Lower Logan Canyon SIA** would be added in Alternatives 1, 2, 6, and 7. In addition, Alternative 7 would manage the roadless (MPC 2.6) south-facing slopes in the lower portion of the canyon as an SIA (botanical area), which would add approximately 8,750 acres. For this area rock climbing activities or other undeveloped recreation might be limited or redirected, if it was determined that use patterns could affect specific plant species at sites where these species exist.

In **potential Lower Red Butte**, a portion of the existing RNA (about 850 of the total 5140 acres) would be reclassified as an SIA in Alternative 1, 2, 3, 6 and 7. In these alternatives more flexibility for restoration ecology research would be provided (than if the area remained part of the RNA). Current uses in this prescription area would be modified so that the research could be conducted in a controlled manner.

The **potential Willard Basin SIA** would be added in Alternatives 1, 2, 6, and 7. In this small tall forb area, recreation use patterns, mostly motorized uses, but also other non-motorized recreation that might affect the tall forb setting would be controlled to the extent that the relic tall forb community was protected.

Intermittent on and off-site interpretive programs could be provided for each of these new SIA's to enhance public knowledge and appreciation for their associated values.

In Alternatives 4 and 5, the areas identified above would not be protected or recognized by SIA prescription, with potential loss or modification of the identified values over time.

W.C. Daniels School Forest – This area has operated under an agreement between the Forest Service and Utah State University for many years. The State of Utah owns one of the four sections that make up the W.C. Daniels School Forest, while the other three are National Forest lands. It is unlike the previous three SIA's in that reclassification of it as an SIA (under Alternatives 1, 2, 6, and 7) is largely recognition of the existing situation, but places the area within the Forest Service Manual's direction for SIA's. Under Alternatives 1 and 2 the road corridor that runs through this SIA would be managed within the SIA, while under Alternatives 6 and 7 the road corridor has a separate management prescription category (MPC) for motorized recreation (MPC 4.4). This road corridor has been used by recreationists for many years, and is a major seasonal route on the eastern part of the Logan Ranger District. The key difference between the prescription scenarios presented for the road corridor within the school forest is that the 4.4 MPC highlights the recreation values while the 2.7 prescription places emphasis on the special interest values of the area. Management of the area under Alternatives 2, 4, or 5 would still be as the W.C. Daniels School Forest but under other MPCs without SIA designation.

Potential Special Area Designation

Alternative 2 includes a **potential Tri-Canyon Special Area**. Under this alternative a process would be initiated among the Forest Service, other interested governments and agencies, business groups, and citizenry to identify values, refine management direction and add additional detail to the desired future condition for this area based on this process.

Under Alternative 1, large parts of this area are recommended for Wilderness. For Alternatives 3, 4, and 5 management would be as depicted by prescription. There would be no special recognition of the area other than values embodied in the mapped prescriptions.

Wild and Scenic Rivers

Under all alternatives, the values identified by the Wild and Scenic River inventory would have interim protection until a suitability study is completed. Standards for the protection of these values (which vary depending on classification as wild, scenic, or recreational) are provided as an appendix to the proposed Forest Plan. In general, those rivers preliminarily classified as wild can have the least modification of their natural setting; scenic rivers allow somewhat more modification; and recreational rivers allow the most. Ongoing activities at the time of eligibility inventory generally will not be in conflict with protection of values. New projects and proposals that could affect the identified outstandingly remarkable values and free flow must be considered in light of interim protection guidance, and potential effects disclosed through standard environmental analysis processes. The protection standards apply under all alternatives.