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Environmental Assessment

Little Pete's Hole S&G Allotment Management Plan Revision

**Manti-La Sal National Forest
Ferron/Price Ranger District
Carbon, Emery and Sanpete Counties, Utah**

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SUMMARY

The Manti-La Sal National Forest proposes to revise Little Pete's Hole S&G Allotment Management Plan. This allotment is located 20 miles west of Orangeville, UT on the Ferron/Price Ranger District, Manti-La Sal National Forest. It is east of Skyline Drive in the head of Seely Creek (Figure 1-1). The allotment extends from Slide Lake, on the east, to Skyline Drive on the west. The north boundary is Seely Creek while the south boundary is Wagon Road Ridge. It includes 5627 acres. The proposed action includes continuing to authorize sheep grazing on the Little Pete's Hole S&G Allotment on National Forest System land by issuance of a Term Grazing Permit. The allotment management plan (AMP) will be revised to describe how livestock grazing would be conducted to ensure compliance with the decision(s) made as a result of this assessment and the Forest Plan.

The purpose of the proposed action is to maintain or improve rangeland conditions affected by domestic livestock grazing. In addition, the purpose is to comply with Public Law 104-19, Section 504(a): establish and adhere to a schedule for the completion of NEPA of 1969 (42 U.S.C. 4321 et seq.) analysis and decision on all allotments within the National Forest System unit for which NEPA is needed (PL 104-19 section, General Provision 1995). The need for action includes: Little Pete's Hole S&G allotment was scheduled to be updated between 1999-2009 (Revised Schedule, 1999); The AMP is old and changes to grazing strategies, boundaries, and permitted numbers have been made over time through administrative decisions; Forest Plan standards and guidelines have changed, and allotment monitoring has occurred. Little Pete's Hole S&G Allotment needs to be analyzed for appropriateness of livestock grazing based on the existing information.

The interdisciplinary team analyzed three alternatives. The alternatives analyzed include, no-action or no change, the proposed action with mitigation measures, and the no-graze alternative. Based upon the effects of the alternatives, the responsible official will decide whether to authorize domestic livestock grazing on the project area's suitable rangelands, and if so, what changes need to be made to the AMP.

This Environmental Assessment (EA) discloses the environmental effects of continued livestock grazing on Little Pete's Hole S&G Allotment on the Ferron/Price Ranger District, Manti-La Sal National Forest. The Ferron/Price Ranger District is located on the east side of Wasatch Plateau which is part of the Colorado Plateau in central Utah bounded on the north by highway 6, south by I-70 and east by highway 10.

The Little Pete's Hole allotment allows domestic livestock grazing on approximately 5627 acres of National Forest Lands. Of these, 3920 are considered suitable for grazing. In most cases the allotment boundaries follow geographic features, such as ridge tops or canyon bottoms. As a result there are often many acres within each allotment that are unsuitable for livestock grazing (i.e. Steep terrain, talus slopes, or heavy timber). In most situations these acres are not grazed. The scope of this analysis is limited to consideration of the proposed action and its alternatives, subject to existing programmatic goals, objectives, standards, and guidelines set forth in the 1986. "Land and Resource Management Plan for the Manti-La Sal National Forest". A location and vicinity map, as well as a map showing the analysis area and allotment boundary, can be found in Chapter 1 of this EA.

Environmental Assessment for Little Petes Hole Allotment

This EA is not a decision document. Instead, it provides information the District Ranger will use in deciding to implement the proposed action or one of the alternatives to the proposed action. The District Ranger's decision will be stated and explained in a Decision Notice following a 30 day public notice and comment period.

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Chapter 1

Purpose and Need

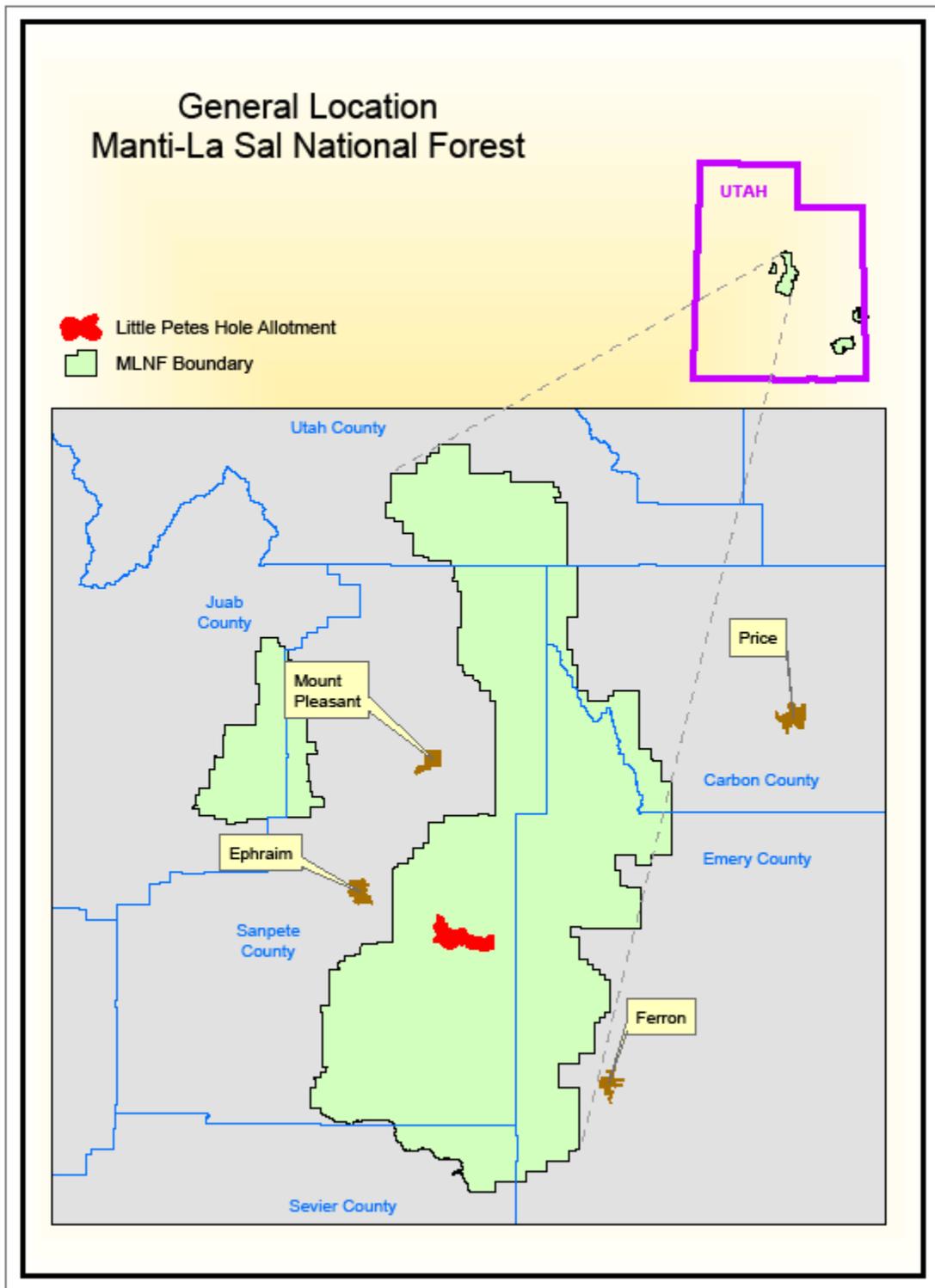
Introduction

The Forest Service has prepared this Environmental Analysis (EA) on the potential effects of authorizing livestock grazing on the Little Pete's Hole S&G allotment (see Figure 1-1) in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. The Manti-La Sal National Forest is part of the Colorado Plateau. Little Pete's Hole allotment is located 20 miles west of Orangeville, UT on the Ferron/Price Ranger District, Manti-La Sal National Forest. It is east of Skyline Drive in the head of Seely Creek. The allotment extends from Slide Lake, on the east, to Skyline Drive on the west. The north boundary is Seely Creek while the south boundary is Wagon Road Ridge. It includes 5,627 acres of National Forest System lands. The allotment is in the upper headwaters of Straight Canyon drainage. The following continuous streams are included in the project area: Seely Creek and Little Pete's Hole Creek. Elevations range from 7,100 feet at the mouth of Seely Creek to 10,350 feet at Danish Knoll Peak. Precipitation ranges from 14 to 45 inches. This EA discloses the direct, indirect, and cumulative environmental impacts and any irreversible or irretrievable commitment of resources that would result from the proposed action and alternatives.

This EA is prepared according to the format established by the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508). Chapter 1, in addition to explaining the purpose and need for the proposed action, discusses how the Little Pete's Hole Allotment Management Plan Revision relates to the Land and Resource Management Plan for the Manti-La Sal National Forest (Forest Plan), and identifies the significant issues driving the EA. Chapter 2 describes and compares the no-action or no change, the proposed action, and a no graze alternative, and summarizes the significant environmental consequences by issue. Chapter 3 describes the natural and human environments potentially affected by the proposed action and alternatives. Chapter 4 discloses what potential effects are anticipated. Chapter 5 contains the list of preparers, the EA distribution list, and literature cited. Appendices provide additional information on specific aspects of the proposed project. This EA incorporates documented analyses by summarization and reference where appropriate.

The Interdisciplinary Team used a systematic approach for analyzing the proposed project and alternatives to it, estimating the environmental effects, and preparing this EA. The planning process complies with NEPA and the CEQ regulations. Planning was coordinated with the appropriate federal, state, and local agencies, and local federally recognized tribes. Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Ferron/Price Ranger District Office in Ferron, Utah. These records are available for public review.

Figure 1-1 General Location of Little Pete's Hole Allotment



Background

An allotment is a designated area of land available for domestic livestock (cattle and/or sheep) grazing. The Federal Land Policy Management Act (FLPMA), as amended by the Public Rangelands Improvement Act, allows for AMP (Allotment Management Plans) to be included in grazing permits at the discretion of the Secretary of the Agriculture (43 USC 1752(d), as amended by 92 Stat. 1803 [1978]). The Secretary has elected to exercise this discretion, and has delegated his authority to issue regulations in this area to the Chief of the Forest Service (See 36 CFR 222.1 and 222.2).

An AMP is defined in FLPMA as a document prepared in consultation with lessee or permittee that applies to livestock operations on the public lands and prescribes:

- 1 The manner and extent to which livestock operations will be conducted in order to meet multiple use, sustained yield, economic, and other needs and objectives.
- 2 Range improvements to be installed and maintained.
- 3 Such other provisions relating to livestock grazing and other objectives found by the Secretary to be consistent with provisions of FLPMA.

In 1986 the “Land and Resource Management Plan for the Manti-La Sal National Forest” (Forest Plan) was signed and has been amended to meet the needs of new issues. This plan provides for multiple-use and sustained yield of goods and services from the Forest. Forest plans determine the capability and suitability of the plan area and establish programmatic direction including goals, objectives, standards, guidelines, and monitoring requirements. This project’s proposed action was designed to comply with the 1986 Forest Plan. Authorization to graze the specific area is needed through a project level National Environmental Policy Act (NEPA) decision (FSH 2209.13 Chapter 91). If the decision is made to authorize livestock grazing on the Little Pete’s Hole allotment, an AMP will be revised to implement the applicable management direction from the NEPA decision.

The objectives of the range management program for the National Forest are:

- Manage the range vegetation to protect basic soil and water quality resources, provide for ecological diversity, improve or maintain environmental quality, and meet public need for interrelated resource use [FSM 2202.1 (1)].
- To integrate management of range vegetation with other resource programs to achieve multiple use objectives contained in the Forest Land and Resource Plan [FSM 2202.1 (2)].
- To provide livestock forage, wildlife food and habitat, outdoor recreation, and other resource values dependent on range vegetation [FSM 2202.1 (3)].
- To contribute to the economic and social well being of people by providing opportunities for economic diversity and by promoting stability for communities that depend on range resources for their livelihood [FSM 2202.1 (4)].
- To provide expertise on range ecology, botany, and management of grazing animals [FSM 2202.1 (4)].

Purpose and Need

The purpose of the proposed action is to maintain or improve rangeland conditions affected by domestic livestock grazing. In addition, the purpose is to comply with Public Law 104-19, Section 504(a): establish and adhere to a schedule for the completion of NEPA of 1969 (42 U.S.C. 4321 et seq.) analysis and decision on all allotments within the National Forest System unit for which NEPA is needed (PL 104-19 section, General Provision 1995). The need for action includes: The Little Pete's Hole allotment was scheduled to be updated between 1999-2009 (Revised Schedule, 1999); The AMP was prepared in 1986 and changes to grazing strategies, boundaries, and permitted numbers have been made over time through administrative decisions; Forest Plan standards and guidelines have changed, allotment monitoring has occurred. Little Pete's Hole S&G allotment needs to be analyzed for appropriateness of livestock grazing based on the current information.

Proposed Action

A "proposed action" is defined early in the project-level planning process. This serves as a starting point for the interdisciplinary team, and gives the public and other agencies specific information on which to focus comments. Using these comments (see discussion of Significant Issues later in this chapter), and information from preliminary analysis, the interdisciplinary team then develops alternatives as needed to the proposed action. These are discussed in detail in Chapter 2.

The Ferron/Price Ranger District of the Manti-La Sal National Forest is proposing the following changes on the Little Pete's Hole allotment (Table 2.1), containing an area of 5627 acres within the National Forest Service Lands:

1. Continue to authorize sheep grazing on the Little Pete's Hole S&G Allotment (Figure 2.2) containing 5627 acres of National Forest System land by issuance of Term Grazing Permits.
2. Change capacity from 831 AUM's to 747 AUM's.
3. Revise existing AMP to incorporate applicable direction.

The AMPs will describe how domestic livestock grazing, at proper use, would be conducted in accordance with 36 CFR 221.1(b)(2), which describes AMP provisions, and will include the following additional terms and conditions:

- Forest Plan standards and guidelines (1986) for sheep and goats.
- Structural range improvement maintenance assignments.
- Requirements for livestock distribution, including herding and salting.
- Monitoring locations and procedures.

Decisions Framework

Based on the environmental analysis in this EA, the District Ranger will decide whether to authorize domestic livestock grazing on the Little Pete's Hole allotment, and if so, what changes need to be made to the Allotment Management Plan in accordance with Forest Plan goals, objectives and desired future conditions.

Relationship to Forest Plan

National forest planning takes place at several levels: national, regional, forest, and project levels. An EA is a project-level analysis; its scope is confined to addressing the significant issues and possible environmental consequences of the project. It does not attempt to re-address decisions made at higher levels. It does, however, implement direction provided at those higher levels.

The Forest Plan embodies the provisions of the National Forest Management Act, its implementing regulations, and other guiding documents. The Forest Plan sets forth in detail the direction for managing the land and resources of the Manti-La Sal National Forest.

The Forest Plan uses management areas to guide management of the national forest lands within the Manti-La Sal National Forest. Each management area provides for a unique combination of activities, practices and uses. The Little Pete's Hole allotment project area includes Semi-primitive (SPR), Wood-fiber production and harvest (TBR), Watershed protection/improvement (WPE), and range management or enhancement (RNG). Goals, objectives and desired future conditions of each designated area. The Forest Plan (Chapter III-44) contains a detailed description of each management area.

Project Area Desired Future Condition

The desired future conditions described for the Forest Plan management areas, in conjunction with the other Forest Plan direction outlined above, provide the parameters for identifying and defining project-specific desired future conditions. The following desired future conditions will help guide management of the project consistent with the Forest Plan (1986), the significant issues (described below), and the ecological conditions of the project area. Criteria involved for Desired Future Condition for vegetation, soil and water, fisheries, wildlife, social and economic stability was directed from the Forest Service Manual (FSM) 2636.4 and Forest Service Handbook (FSH) 1909.12, 4.24d. and 4.24e) (Range Management Specialist Report, 2007).

Forested Vegetation

- Where treatments are proposed to convert mature or old conifer stands on timber emphasis lands to an earlier age class or seral stage, domestic livestock grazing will not prohibit or limit establishment, survival, and growth of conifer species.
- Aspen treatments designed to convert aspen stands to a younger age or seral stage will be designed with domestic livestock grazing controls in place to assure the establishment, survival, and growth of seedlings according to the silvicultural prescription.

Rangeland Vegetation

- Non-forested ecosystems are resilient, diverse, and functioning within their site potential. Non-forested ecosystems in proper functioning condition are managed to maintain at least that condition with no downward trend, with less resilient and more sensitive areas recovering.
- Non-forested ecosystems reflect a mosaic of multiple-aged shrubs, forbs, and native grasses with management emphasis on maintaining a diverse sustainable plant community. Patterns are within historical ranges.
- On areas capable of tall forb dominance, tall forb types reflect historical ranges of ground cover leading into the winter season. Composition reflects a mosaic

- dominance of tall forb indicator species. Disturbance regimes demonstrate stable or upward trend in tall forb indicators. Patterns are within the historical range.
- Historical sites, which currently are not capable of tall forb dominance, will be managed to maintain watershed stability.
 - Forest-wide vegetation communities have the necessary structure, composition, ecological processes, and ecosystem function to maintain viable populations of native and desired non-native species.
 - The introduction and spread of noxious weeds is contained, and ecologically sound methods of controls are applied across the Forest. New infestations of noxious weeds are rare across the landscape and existing large infestations are slowly declining.
 - Management activities contribute to the recovery of federally listed, proposed, and sensitive plant species.

Riparian and Aquatic Habitat

- Stream channels and floodplains are functioning properly relative to the landform (gradient, size, shape, roughness, and sinuosity) and climate.
- Riparian areas identified as being in proper functioning condition are managed to maintain at least that condition with no downward trends. Areas identified as functioning-at-risk or non-functioning show an upward trend towards proper functioning condition.
- Impacts from activities in riparian areas and stream channels are compatible with sustaining properly functioning conditions and improving those streams in less than desirable conditions.
- Water quality meets Clean Water Act requirements; EPA approved state quality standards, and contributes to high habitat quality.
- Native aquatic species population's strongholds are increasing. Stream corridors on the Forest allow most aquatic species to achieve their full life cycles. Improved aquatic habitat conditions contribute to the recovery of federally listed species, and keep species-at-risk from being listed allowing them to expand into previously occupied Forest habitat.
- Riparian areas have a mixture of seral and mature and old age classes that are resilient and diverse, and are at or approaching desired vegetative conditions. Riparian areas are dominated by vegetation associated with the landform, stream substrate and gradient, and elevations.
- Re-establish willow on all sites capable of supporting willow. Once reestablished, it would be desirable to maintain healthy and vigorous plants. This would provide root strength, restrict access to the channel, and increase the potential for beaver expansion. Increasing the role of beaver would add habitat diversity, stabilize banks, store sediment, hold back water for late season flows, and raise water tables effectively reconnecting the streams to their floodplains.
- Re-establish sedges or other wetland/riparian species on all sites capable of supporting these plants. These plants provide substantial root strength and are very effective at maintaining bank stability, trapping and filtering sediments, and filtering nutrients and fecal contamination.
- Maintain riparian ground cover near natural levels. This would minimize the amount of exposed soils and the likelihood that these soils would wash into streams during precipitation events. A high level of ground cover would also

increase sediment, nutrient, and bacterial filtration and prevent these materials from washing into the streams from hill slope and valley bottom disturbances

Soil

- Soil quality, productivity, and hydrologic function are maintained and restored where needed. Long-term soil productivity or Regional standard of less than or equal to 15 percent detrimentally impacts.
- Soils have adequate protective cover, levels of soil organic matter (litter), and coarse woody material. Physical, chemical, and biological processes function to sustain the site.
- Microbiotic crusts and their importance to soil stability are recognized.
- Management practices are designed to retain and improve these soil components.

Scope of the Proposed Action

Administrative Scope

Section 40 CFR 1508.25 of the NEPA implementing regulations provided guidance for the interdisciplinary team in determining proper scope of the EA. The proposed action is limited to the revision of the Allotment Management Plan and connected structural improvements. If livestock are authorized, the decision will include specific elements for the AMP; the actual AMP will be revised following the decision. The responsible officer is the Ferron/Price District Ranger.

Public Involvement

Scoping

The Council on Environmental Quality (CEQ) defines scoping as "...an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR 1501.7). Among other things, the scoping process is used to invite public participation, to help identify public issues, and to obtain public comment at various stages of the EA process. Although scoping is to begin early, it is really an iterative process that continues until a decision is made. In addition to the following specific activities, the Little Pete's Hole allotment AMP revision project has been listed on the Manti-La Sal National Forest Schedule of Proposed Actions since January 1999.

In January 2008, a letter providing information and seeking public comment was mailed to approximately 30 individuals and or groups. This included federal and state agencies, municipal offices, businesses, interest groups, and individuals. A total of five responses to this initial mailing were received. To date, the public has been invited to participate in the project in the following ways.

- Annual correspondence, routine and special meetings with permittees about this action as it pertains to their specific allotment.
- Scoping to continue sheep grazing on eight allotments was published in the SanPete Messenger in December 2008.

- Legal Notices to authorize sheep grazing on the Little Pete's Hole Allotment (EA) was published in the SanPete Messenger and the Emery County Progress in February 2008.

Tribal Consultation-Little Pete's Hole Sheep Allotment

Initial scoping documents were sent to the tribal governments of the Hopi, Paiute, Ute Mountain Ute, White Mesa Ute, Ute Tribe (Fort Duchesne), and Navajo in June of 2001. Although none of the tribes responded to the scoping documents, follow-up meetings and telephone contacts were made. Tribal input indicated a general concern for avoiding potential impacts to cultural resource sites as a result of range improvement construction or trampling of sites in areas where livestock may be concentrated. Such impacts are avoided through compliance with Section 106 of the National Historic Preservation Act.

No Traditional Cultural Properties or sacred sites were identified in the analysis area through these consultation efforts. However, disturbance of natural springs was identified as a concern; for the water quality and flow; the high potential for archaeological remains around springs; and, the occurrence of traditionally used plants around springs. A list of culturally significant plants provided by the Paiute was submitted to the Forest botanical expert for review. There are no sensitive or threatened species on that list and they are not likely to be affected by sheep grazing.

Issues

The Forest Service separated the issues into two groups: significant and nonsignificant issues. Significant issues were defined as those directly or indirectly caused by implementing the proposed action. Non-significant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council for Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..." A list of non-significant issues and reasons regarding their categorization as nonsignificant may be found in the project record. Following the significant issues, the conditions and effects are described for resources which are of concern but did not drive alternatives. These disclosures are specifically required by law, regulation or policy.

Significant Issues

Significant issues for the Little Pete's Hole S&G allotment AMP Revisions project were identified through public and internal scoping. Similar issues were combined into one statement where appropriate. The following issue was determined to be significant and within the scope of the project decision.

Issue 1. Water Resources and Soil Productivity

Livestock grazing may decrease native vegetation on the ridges and higher elevations, which could affect long term soil productivity resulting in reduced infiltration rates and increased erosion.

Rangeland Background: Condition and trend of range vegetation and soils are often used as barometers in assessing the health of the land. Condition ratings, even though they are accurate, are of little use without knowing the trend of condition. A range in poor condition that is still deteriorating requires different treatment than a poor range that is in an improving trend. The most important factors for determining trend include vigor and reproduction of both desirable and less desirable plant species, and the amount of vegetative litter. Only trend of conditions would reflect correctness of current grazing practice (Stoddart et al. 1975).

Livestock grazing can affect soil and vegetation productivity through removal of protective plant cover and compaction of soils from hoof action, which can result in reduced infiltration rates and increased erosion. The magnitude of these changes is determined by the intensity of grazing as well as by soil type, climate, topography, livestock management, and vegetation type (Stoddart et al. 1975).

Compaction of soils affects water infiltration rates and root penetration. A high percentage of plant cover and large amounts of root biomass generally increase the infiltration rate (USDA Natural Resources Conservation Service 2001). Grazing treatments, which cause a reduction in vegetative cover and standing crop—with a corresponding increase in bare ground—tend to reduce water infiltration rates and concurrently enhance sediment production (Pluhar et al. 1987). The consequence of reduced infiltration rates is increased runoff. This reduces the effectiveness of precipitation and makes ranges even more arid than normal, further reducing their ability to produce forage (Stoddart et al. 1975).

Indicator: Land class associations with greater than 50% bareground from livestock grazing.

Issues Considered but Not Carried Forward for Analysis

The following issues were considered but discarded from evaluation:

1. Noxious Weeds

Three species of noxious weeds are spreading within the landscape and sheep grazing may be contributing to the spread of these weeds.

Rationale: Sheep are sheared before entering the forest and weed species at lower elevations have not produced viable seed when sheep move to higher elevations. Under state law permittees are required to use certified weed free feed for any feed transported to the Forest. In addition, noxious weed control is addressed through a Forest-wide program.

2. Quaking Aspen Regeneration

Quaking aspen is being lost by conifer encroachment, browsing and grazing. A lack of aspen sprouting is also evident through most of the pure stands but is evident in many areas.

Rationale: Aspen is most at risk due to conifer encroachment but is also vulnerable to sheep grazing especially stands that have sparse sprouting. Where sprouting has been profuse herbivory has not been detrimental to the sprouts. It is generally accepted that in order to secure aspen regeneration some treatment will be necessary to maintain habitat diversity. If a treatment is initiated livestock will not be permitted to graze the stand until at least 500 stems per acre are 6 feet tall (Ferguson, 2005).

Changes in conifer are due to a spruce beetle outbreak that is reducing the number of live trees increasing early seral conditions. Aspen/conifer stands would see an increase in the number of aspen as spruce trees die. Stable aspen would be expected to have an increase in early seral plants as dispersed sites increase.

3. **Wildlife**

Domestic livestock grazing may be impacting wildlife and fish species throughout the landscape.

Rationale: A wildlife biologist report was completed that addressed impacts to management indicator species and species of interest. Biologists also completed an analysis of capable and suitable habitat of management indicator species. These analyses did not find conflicts with plants, animals or fish or habitats for these species addressed if proper use guidelines continue to be applied. The reports are part of the project record.

4. **Threatened, Endangered, and Sensitive Species (Plant and Animal)**

Domestic livestock grazing may be impacting wildlife and fish species throughout the landscape.

Rationale: Federal agencies are mandated to analyze effects of proposed projects on T&E species according to the Endangered Species Act of 1973. To meet this requirement, biological assessments (BA) for species known to occur or which may occur in the analysis area have been prepared by Forest Service. Neither of these evaluations identified a concern for maintenance or recovery of any TE&S species. These reports are part of the project record.

Sensitive Species

Rationale: The Forest Service is required to analyze the effects of proposed projects on sensitive species. A Regional Sensitive Species list was provided to the Forest by the Intermountain Region (Region 4) of the Forest Service. This list identifies sensitive species which may occur on the Manti-La Sal National Forest. Biological evaluations (BE's) for sensitive species have been prepared by wildlife biologists which analyzed the effects of the proposed actions on these species.

5. **Cultural and Paleontological Resources**

Livestock grazing may impact important historic and prehistoric sites.

Rationale: The types of cultural sites known to exist within the analysis area are normally not susceptible to damage by grazing sheep. Monitoring conducted during 2006 did not find any impacts from sheep grazing to known sites in the analysis area (verbal contact with District Archeologist). Consultations with interested tribal entities have indicated that there are no known traditional cultural properties or sacred sites located within the analysis area. Present sites of high interest for paleontological resource exploration are outside the analysis area.

6. Water Quality

Sheep grazing may affect water quality if utilization standard and soil disturbance guidelines are exceeded.

Rationale: Only a small fraction of the soil moving on hillslopes is actually delivered to streams (Edwards 1993; Wasson et al. 1996). This implies that most of the sediment travels only a short distance (Parsons and Stromberg 1998) and is deposited before leaving the hillslope. In general, the amount of sediment deposited is intimately related to the topography, climate, soil, vegetation cover, and land use conditions, which are all closely related to the hydrological processes. The travel time for transport of sediment across a field or hillslope is often longer than the duration of runoff-generating events so that runoff infiltrates and is not delivered to the stream, along with the sediment it carries. In some environments there is also patchy generation of runoff on impermeable areas which then infiltrates on other patches of high infiltration, often at sites with better cover. Topography can induce deposition through its influence on the capacity of overland flow to transport sediment. Reductions in gradient and the dispersion of overland flow can both cause deposition. Farm structures, such as contour banks and dams, can have similar effects, altering flow paths or trapping runoff. Deposition also results from abrupt changes to vegetation cover as runoff travels downslope. This causes deposition in backwaters and reduces the sediment transport capacity of flow (Hua Lu et al. 2003).”

The Price River, San Rafael River, and Muddy Creek watersheds can be divided into upper, middle, and lower reaches, based generally on land uses within the watersheds. As discussed in Section 3 of this report, water quality in the upper reaches of the watersheds meets TDS water quality standards. Land in this portion of the watershed is primarily forest lands managed by the BLM or USFS. (Price River, San Rafael River, and Muddy Creek TMDLS for Total Dissolved Solids West Colorado Watershed Management Unit, Utah EPA Approval Date: August 4, 2004 pg 24 2.2)

7. Riparian

Sheep grazing can impact riparian areas by improper bedding and trailing.

Rationale: In the FEIS for 31 sheep allotments, dated July 2005, impacts to riparian areas were considered an issue because of national interests and concerns for these plant communities. A Level II Riparian Inventory completed along many

streams throughout the Forest from 1992 to 1997 found most riparian areas to be in very good condition. Varying levels of impacts from sheep grazing are occurring (2007) but are in small isolated areas and at some spring sources where sheep water.

Acceptable impacts are:

- Livestock watering sites are small and not connected. Impacts do not result in accelerate stream bank erosion.
- Livestock crossing places do not result in accelerated stream bank erosion or creation of a new channel.

Unacceptable impacts are:

- Bedding within riparian areas.
- Repeatedly driving the herd through riparian areas.

Areas that exceed acceptable impacts will be mitigated by installation of water troughs, changes in management, fencing or closure to grazing.

8. Recreation

Conflicts that occur for space and esthetic values should take precedence over livestock grazing. Concerns were also expressed regarding growing impacts from ATV use.

Rationale: Areas of concentrated recreation use, mostly near reservoirs, have been determined to be unsuitable for sheep grazing. In recent year's increases in dispersed camping have increased areas of conflict. Dispersed recreation sites are heavily impacted sites resulting from camping and ATV use. Herders tend to avoid these areas as the sheep are often harassed and or chased away by recreationists. Recreationists who bring dogs that create additional conflicts. Some of the newer dispersed sites are places where herder camps have been placed for many years. This displaces the herder making proper sheep management more difficult or forces the camp to be placed in areas of higher conflict. These sites are estimated to presently represent less than 5% of the suitable range and

Sheep generally prefer to graze upslope of higher elevations and will move by themselves unless a herder constantly holds them. ATV developed trails provide widened, improved trails corridors that allow sheep to readily trail from one area to another that can greatly increase work for a herder. Increasing use on ATV trails also disturb the sheep once they are scattered and settled for they day. ATV use can moves the sheep making it difficult for a herder to get the sheep settled for the day. ATV users who take dogs with them further hinder a herder's effort to settle the sheep for the day. Herders tend to move away from areas of conflict. This increases grazing pressure on other suitable rangelands rather than having uniform use across an entire allotment.

9. Range Management, Monitoring and Range Improvement

Concerns were expressed for level of forage use, monitoring methods and need for range improvements.

Rationale: Proper forage use levels are displayed in the Forest Plan. Forest handbooks display monitoring methods, but some monitoring studies need special design depending on what needs to be monitored and are best developed at a site specific level and would be documented in the AMP. Range improvements could be used to mitigate impacts associated with sheep grazing in specific areas. In most cases these are low impact improvements that require archeological clearance.

10. **Species Diversity**

Domestic livestock grazing may be impacting flora species diversity throughout the landscape.

Rationale: All of the plant species expected to be in the analysis area is represented in the area but there tends to be a poor distribution of forb species. This is thought to have resulted from abusive grazing around the turn of the 20th century. Trend studies indicate a slow increase in the number of grass and forb species over the past 30 years. Allotment inspection photos illustrate the diversity on the allotment (See Appendix).

Resource Concerns

The following resources are important in the analysis area but effects on them have been effectively mitigated with the proposed action and they will not drive formulation of alternatives to that Proposed Action. Disclosure of effects on these resources, however, is required by law, regulation and policy.

Wildlife Habitat and Management Indicator Species Threatened and Endangered Species (T&E)

Federal agencies are mandated to analyze effects of proposed projects on T&E species according to the Endangered Species Act of 1973. To meet this requirement, biological assessments (BA) for species known to occur or which may occur in the analysis area have been prepared by Forest Service biologists.

Sensitive Species

The Forest Service is required to analyze the effects of proposed projects on sensitive species. A Regional Sensitive Species list was provided to the Forest by the Intermountain Region (Region 4) of the Forest Service. This list identifies sensitive species which may occur on the Ferron/Price Ranger District. Biological evaluations (BE's) for sensitive species have been prepared by wildlife biologists which analyze the effects of the proposed actions on these species.

Other Management Indicators (Not T, E, S) and Migratory Birds

Indicator species for the Manti-La Sal National Forest are; Mule deer, Rocky Mountain elk, Northern goshawk, Golden eagle, macro-invertebrates and sage grouse.

Migratory Birds

The Migratory Bird Treaty Act imposes obligations on federal agencies for the conservation of migratory birds and their habitats. Executive Order 13186 ensures that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions on migratory birds, with emphasis on species of concern.

The Utah Partners in Flight Avian Conservation Strategy identifies 20 non-game migratory land birds as priority species. Ten of these species could be expected to occur on the Manti Division of the Manti-La Sal National Forest. Chapter 3, under Resources of Concern these species, their habitat associations, and their consideration are addressed. The USFWS Birds of Conservation Concern identifies 29 species within the Southern Rockies/Colorado Plateau Bird Conservation Region (BCR). Five of these species could be expected to occur on the Manti Division of the Manti-La Sal National Forest. Utah Division of Wildlife Resources identifies 44 bird species in the Utah Comprehensive Wildlife Conservation Strategy. Twenty-one of these species could be expected to occur on the Manti Division of the Manti-La Sal National Forest. Migratory birds for the Manti-La Sal National Forest are; Black swift, Black-throated gray warbler, Brewer's sparrow, Broad-tailed hummingbird, Ferruginous hawk, Grey vireo, Sage sparrow, Virginia's warbler, Yellow-billed cuckoo, Three-toed woodpecker, Pinyon jay, Williamson's sparrow, Prairie falcon, Swainson hawk, Northern harrier, Short-eared owl, Sage thrasher, Osprey, Lewis' Woodpecker.

A wildlife report has been prepared by wildlife biologists who analyze the effects of the proposed actions on these species.

Straight Canyon Culinary Watershed

The city of Castledale and Orangeville, Utah receives their water from the upper headwaters springs and seeps in Seely, Beck's Creek and its tributaries. This is also part of the Little Pete's Hole Sheep Allotment.

Resources Considered and Eliminated

The following resources were considered during the analysis. These resources are not impacted by the proposed action or by any of the action alternatives. These actions will not be addressed any further in this document. The rationale for not carrying them further in the document is also displayed.

Climate

The general weather pattern that influences the project area encompasses most of Central Utah. None of the alternatives would have an impact on climate in the project area.

Minerals

There is a potential for oil and gas leases associated with the allotment. No oil and gas operations exist or are proposed for the area. Coal mining is not anticipated due to lack of reasonable access. None of the alternatives would have an impact on mineral resources in the project area.

Geology

The boundary of the Manti Division roughly corresponds with the structural limits of the Wasatch Plateau. This plateau is the northernmost portion of the High Plateaus of Utah. The eastern margin of the plateau is formed by an abrupt wall of barren cliffs and steep slopes, broken only by the V shaped mouths of large canyons. It forms the great highland rim of the Colorado Plateau Region. This great escarpment is formed entirely by erosion, except for a small part near the town of Emery where some faulting is evident.

On the west, the margin of the plateau is hardly less abrupt than on the east, although the character is entirely different. The rock layers of the western margin bend downward toward the Sanpete and Sevier Valleys forming a monoclonal fold. The slope of the plateau front corresponds with the dip of the rock layers.

Major faulting falls into three separate zones or groups which have been described by Spieker as the North Gordon, Pleasant Valley, and Joe's Valley Fault zones. The rock layers between the major faults of each zone have dropped relative to the surrounding areas forming "grabens". The remainder of the plateau has experienced more minor faulting. The faults are considered normal in that beds on one side of the fault have down-dropped in relation to the other side. The fault planes that have been observed are vertical or nearly vertical.

The plateau surface ranges from 9,000 to 11,300 feet above sea level and 3,000 to 6,500 feet above the valley floors to the east and west. The higher levels present a striking contrast to the barren cliffs and rugged canyons of the east front.

Rock formations of the Wasatch Plateau are dominantly sedimentary in origin and range in age from upper Cretaceous to lower Eocene. They consist mostly of sandstone and shale, but also include beds of conglomerate, limestone, and siltstone. Their combined thickness in the plateau exceeds 10,000 feet. Generally, the rock strata are tilted at slight angles with a few locations lying nearly flat. However, some locations have been subjected to more disturbance and strata dip between 10 to 20 degrees. The stratigraphic units include the Mancos Shale through the Green River Formation. Figure II-1 presents the stratigraphic sequence of the formations, shows a brief description of their lithologies, and displays their relative ages. This figure also shows the relationship of the coal seams of the Wasatch Plateau Coal Field to the stratigraphy. The North Horn and Green River Formations generally tend to be naturally unstable due to their composition and structure. The coal bearing Blackhawk Formation also tends to be unstable, but to a lesser degree. Nearly all of the formations and soils of the plateau are susceptible to failures given the right conditions, such as steep slopes, water saturation and faulting. None of the alternatives would have an impact on geology in the project area.

Visual

The Forest Service used the Visual Management System (VMS) to assign visual quality objectives (VQOs) to areas of the forest. Most of the scenery of the project area is typical for the region. Characteristic landscapes include moderately steep slopes with a variety of vegetation cover ranging from stands of spruce and fir intermixed with aspen, mountain brush and grass/forbs. The visual quality objectives for the Little Pete's Hole project area is partial retention, which means in general that man's activities may be evident but remain visually subordinate to the characteristic of the landscape.

Fences, ponds, water developments, pipelines, and troughs are generally small in scale and are not evident when viewed as background or middle ground. Some livestock facilities may be

evident when viewed as foreground, but if they are neutral in color they blend into the surrounding natural landscape.

The proposed action will meet the VQOs, if care is taken with the scale and color of livestock improvements. Incorporating applicable standards and guidelines of the Forest Plan in the grazing permits could improve vegetation conditions in and around riparian areas, which would have a positive effect on the scenery of riparian areas when viewed as middle ground and foreground.

Wild and Scenic Rivers/ Wilderness Resource/ Roadless

There are no Wild and Scenic Rivers in the proposed project area.

There is no proposed wilderness area in the proposed project area.

None of the alternatives would impact the roadless areas.

Air Quality

The project area falls within a class II air shed within the Utah Air shed Group Smoke Management Plan. Generally, conditions of excellent air quality exist on lands administered by the Forest Service on Manti-La Sal National Forest. All lands within the project area have been designated as a Class II area as authorized by the 1977 Clean Air Act. None of the alternatives are expected to change air quality conditions.

Fire

Livestock grazing affects the fuels side of the fire environment. Annually, livestock grazing does reduce the total amount of fine fuels within the analysis area. This removal of fine fuels does decrease the ease of ignition and resistance to control in some shrub/grass, and aspen cover types, but woody material is still accumulating over time. Livestock grazing would not impact the overall fire hazard within the analysis area.

Forested Vegetation

Field observations of the forested vegetation within the project area indicate a pronounced trend towards shade tolerant species as evidenced by the density, age and size of the shade-tolerant dominated understories. Subalpine fir is very prevalent in the understories of many timbered stands throughout the project area. These understories are dense and well established and are competing heavily for all available moisture, sunlight and nutrients. As a result, the herbaceous layers in conifer, and aspen stands succeeding to conifer, are changing. Overall, the amounts of down woody debris, mainly dead, fallen timber has increased as well with time. Insect and disease activity are also on the increase. According to the GIS database, most of the timber on the Manti-La Sal is mature and there is less age class diversity than historically present in these habitat types.

None of the alternatives including the proposed action would treat any of the forested vegetation. Therefore, it would have no impact on insect and disease. Improving these sites would help reduce damage to trees that make them more susceptible to insects and disease. More information on forested vegetation is located in the project folder.

Special uses

There are irrigation ditches and a tunnel under special use permits that supports Ephraim City (culinary) and SanPete County (irrigation). Seely Guard Station is also under a special use permit. More information concerning these special use permits is located in the project file. None of the alterative would impact authorized special uses.

Threatened, Endangered, and Sensitive Plants

There are no threatened or endangered plants in the project area. No federally listed plant species are known to occur on the allotment. **Silene petersonii** is found to the south of the allotment on Wagon road ridge and has the status of sensitive on the Forest List. There are no effects expected to the species. Refer to Biological Evaluation and Assessment for more detailed information.

Recreation Resources

The proposed project area consists of the following designated recreation opportunities: Pete's Hole Reservoirs, a developed campground with seven camp sites, and 2.7 miles of non motorized trail (these trails are open to: hikers, horses, and mountain bikes). Motorized travel is restricted throughout the analyses to the travel plan.

Overall conflicts between domestic livestock grazing and recreational use, in the analyses area, have been moderate/minimal. Priority concerns, from a recreational standpoint are: (1) addressing current salting and water development practices impacting system trails. (2) Maintaining control of public water systems. (3) Maintaining the current herding practices in order to keep livestock from entering developed recreation sites. Incorporating these measures into the proposed action can provide for a better recreational experience, without impacting the livestock use and management.

Applicable Laws and Executive Orders

Disclosures and findings required by Federal laws and executive orders pertaining to project-specific planning and environmental analysis on federal lands are contained in Chapter 2 of this EA.

Chapter 2

Alternatives

Introduction

This chapter describes and compares the alternatives considered by the Forest Service for the Little Pete's Hole S&G Allotment Management Plan Revision. It includes a discussion of how alternatives were developed, an overview of mitigation measures, monitoring and other features to each alternative, and a comparison of these alternatives focusing on the significant issues. Alternative 2 is identified as the preferred alternative. Chapter 2 is intended to present the alternatives in comparative form, sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public (40 CFR 1502.14).

Some of the information used to compare alternatives at the end of Chapter 2 is summarized from Chapter 3, "Affected Environment and Environmental Consequences." Chapter 3 contains the detailed scientific basis for establishing baselines and measuring the potential environmental consequences of each of the alternatives. For a full understanding of the effects of the alternatives, readers will need to consult Chapter 3.

Development of Alternatives

The IDT used information from public scoping, including the significant issues identified for the project (see Chapter 1), and in conjunction with the field-related resource information, to formulate a reasonable range of alternatives. 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 Forest Plan, and 2) consider a reasonable range of solutions for the significant issues.

Findings and Disclosures

Several of the laws and executive orders listed in Chapter 1 require project-specific findings or other disclosures. These are included here, and also in the Decision notice. They apply to all alternatives considered in detail in this EA.

National Forest Management Act

All project alternatives fully comply with the Manti-La Sal Forest Plan (1986). This project incorporates all applicable Forest Plan forest-wide standards and guidelines and management area prescriptions as they apply to the project area, and complies with Forest Plan goals and objectives. This includes additional direction contained in all amendments. All required interagency reviews and coordination has been accomplished; new or revised measures resulting from these reviews have been incorporated.

The Forest Plan complies with all resource integration and management requirements of 36 CFR 219 (219.14 through 219.27). Application of Forest Plan direction for the Little Pete's Hole AMP revisions ensures compliance at the project level.

Endangered Species Act

The following threatened and endangered species are considered when evaluating projects on the Manti-La Sal National Forest: Canada lynx (*Lynx canadensis*), yellow-billed cuckoo (*Coccyzus americanus*), Utah prairie dog (*Cynomys parvidens*) and Heliotrope milk-vetch (*Astragalus montii*). A biological assessment (USDA 2008) evaluated the impacts of this project to the Endangered, Threatened, Proposed and Candidate Species of Utah Counties for Carbon, Emery and San Pete and documented a “no affect” determination.

National Historic Preservation Act

Cultural resource surveys of varying intensities have been conducted, following inventory protocols approved by the State Historic Preservation Officer. Native American communities have been contacted and public comment encouraged. (Archeologist Report 2005).

Clean Water Act

The design of project activities is in accordance with Forest Plan standards and guidelines, the Regional Guide, Best Management Practices, and applicable Forest Service Manual and Handbook direction. Monitoring and evaluation of the implementation and effectiveness of Forest Plan standards and guidelines and Best Management Practices will occur. Project activities are expected to meet all applicable State of Utah water quality standards.

Executive Order on Invasive Species (No. 13112, signed Feb. 3, 1999)

Implementation of any alternative with mitigation “is not anticipated to cause or promote the introduction or spread of invasive species...” See Factors common to all alternatives and Chapter 3 Analysis.

Executive Order on Migratory Birds (No. 13186 signed January 11, 2001)

Management objectives from The Utah Bird Conservation Plan (Version 2.0, 2002, prepared by Utah Partners in Flight Avian Conservation Strategy, U.S Fish and Wildlife Birds of Conservation Concern and Comprehensive Wildlife Conservation Strategy would be met on all alternatives. This is the comprehensive planning effort that will be used in the interim until the Memorandum of Understanding with the US Fish and Wildlife Service is developed to promote the conservation of migratory bird population. See Analysis, Chapter 3.

Executive Order 12898 (Environmental Justice)

Federal actions to address Environmental Justice in Minority population and low-income populations, and Departmental Regulations 5600-2 direct Federal agencies to integrate environmental justice considerations into Federal programs and activities. Environmental justice means that, to the greatest extent practicable and permitted by law, all populations are provided the opportunity to comment before decisions are rendered on, are allowed to share in the benefits of, are not excluded from, and are not affected in a disproportionately high and adverse manner by, government programs and activities affecting human health or the environment. Public involvement activities in Chapter 2 documents the efforts made to provide the opportunity to comment. Implementation of any project alternative is not anticipated to cause disproportionate adverse human health or environmental effects to minority or low-income populations.

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 Forest Plan (1986), and 2) consider a reasonable range of solutions for the significant issues.

Alternatives Considered in Detail

The interdisciplinary team analyzed three alternatives. The alternatives analyzed include: no-action or no change, the proposed action with mitigation measures, and the no-graze alternative. The features common to all the alternatives are discussed first and a detailed description of each alternative follows.

Features Common to All Alternatives

The ongoing Manti-La Sal National Forest Noxious Weed Strategy (USDA, 1993) would continue on the allotment. The strategy provides a systematic approach to noxious weed treatment using chemical, biological, and mechanical means of weed control for the project area. Early detection and treatment are the most cost-effective way to prevent spread of noxious weeds.

For any alternative selected, a monitoring plan would be developed using Forest Service Handbook 2209 techniques and protocol, implemented and followed to identify the effectiveness of planned activities. Specific locations or “key areas” would be identified for upland areas (this would include existing long-term trend study locations displayed in Chapter 3).

Implementation monitoring

Used to determine if the goals, objectives, standards and guidelines, and practices of the Forest Plan are implemented in accordance with the Forest Plan. This includes short-term monitoring (e.g. Actual use record and forage utilization techniques -Stubble Height, Ocular estimates, and use-mapping).

Effectiveness monitoring.

Used to determine if the Forest Plan standards and guidelines, and practices, as designed and implemented are effective in accomplishing the desired result. This includes long – term monitoring (e.g. nested frequency trend studies, riparian level II and III, photo-points, and point ground cover samples, production).

Alternative Description

Alternative 1 (No-Action or No Change)

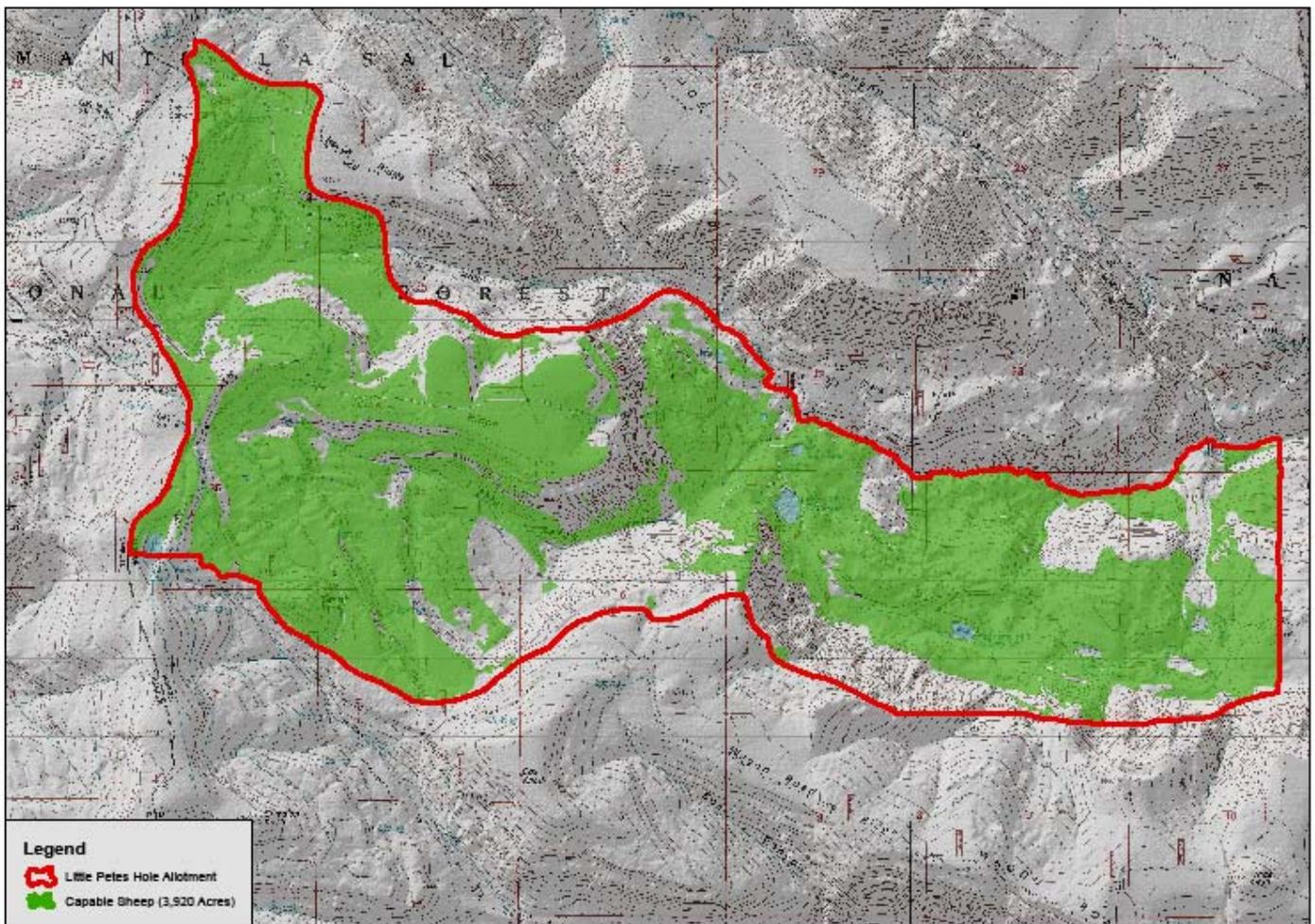
This alternative reflects no change from the existing situation, which continues implementation of the existing AMP on the allotment. Authorized use in terms of number, class, season of use, and management system would remain the same. Structural improvements would be limited to those in existing AMP. Permitted obligation would provide for 2770 HM of grazing.

The Council on Environmental Quality (CEQ) regulations (40 CFR 1502.14d) requires that a "no action" alternative be analyzed in every EA. According to the CEQ Guidelines, the No Action alternative can either be “no change from current management direction” or no action taken on the proposed activity. This alternative represents the existing condition against which the other alternatives are compared. The Table 2.1 shows the current permitted use, existing structural improvements, acres (total and capable), grazing strategy and proper use utilization.

Table 2.1 Little Pete’s Hole Existing Allotment Information.

Allotment & Last AMP issue date	Permitted Use	Structural Improvements	Total Acres/ Capable Acres	Grazing Strategy & Utilization
Little Pete’s Hole AMP- 1986	7/15-9/30 1080 ewe/lamb 831 AUM’s 2770 HM	1 mile fence 2 ponds, 2 troughs, 1 corral	5630/3920	Three pasture twice over deferred rotation grazing.45% use on key species

Figure 2.2 Little Pete’s Hole Allotment



Alternative 2 (Proposed Action)

This alternative was designed to respond to the purpose and need for action described in Chapter 1. It also addresses the following issues: water resources, soil productivity, and vegetation diversity. This alternative proposes the following changes on Little Pete’s Hole sheep grazing allotment (Table 2.3), an area of 5627 acres within the National Forest System Lands:

1. Change head-month numbers, and propose new structural improvement (Table 2.3)
2. Spring exclosures to protect spring source from trampling (Figure 2.4).
3. Change from a three pasture twice over deferred rotation grazing to a six pasture deferred rotation grazing system.
4. Revise AMP

The AMPs will describe how domestic livestock grazing, at proper use, would be conducted in accordance with 36 CFR 221.1(b)(2), which describes AMP provisions, and will include the following additional terms and conditions:

- Forest Plan standards and guidelines.
- Structural range improvement maintenance assignments. .
- Requirements for livestock distribution, including herding and salting.

The following conditions will be incorporated as applicable:

Continue to implement Forest Plan proper use criteria of key species unless an Interdisciplinary Team describes other specific forage use criteria based on key species (Good and fair forage species. Thompson 2003):

Forest Wide Proper Use Criteria

Sheep Allotments

1. Uplands

<u>Use category</u>	<u>% use of key species</u>
Light Use	0-25%
Moderate Use	26-45%
Heavy Use	Greater than 46%

Moderate use is considered to be proper use.

2. Riparian Areas

Spring	50-60%
Summer	45-50%
Fall	30-40% or
	4"-5" of stubble or regrowth

3. Soil Disturbance

<u>% Slope</u>	<u>% allowable soil disturbance</u>
0-25%	30%
26-40%	20%
41-60%	10%
61% or greater	5%

Domestic livestock will be removed from pasture or riparian areas when these allowable forage utilization levels are reached.

Management Requirements:

These specific requirements are applied to ensure proper grazing management. They will be provided through annual operating instructions and/or included in Term Grazing Permits (part 3):

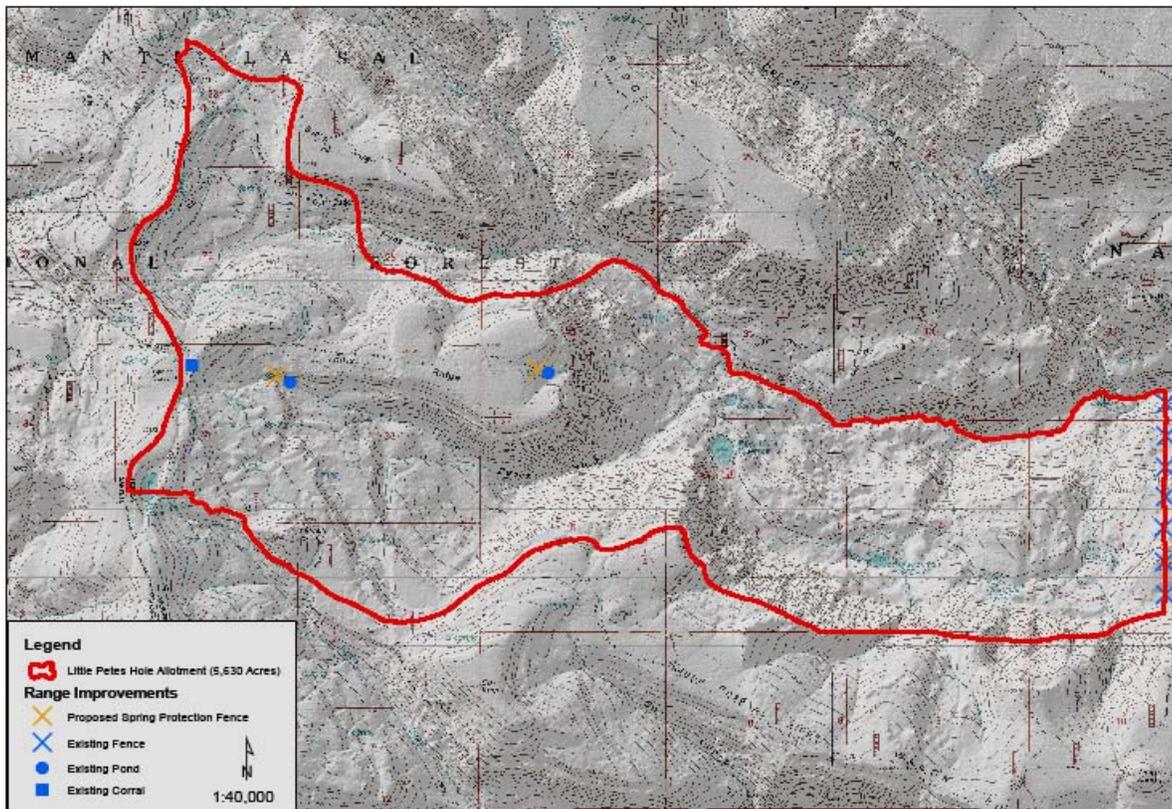
1. Any hay, grain, straw or other livestock feed used on the allotment will be certified as noxious weed, or noxious weed seed free as directed by the order. That certification must be with the feed.
2. The permittee or herd manager will provide sufficient riders or herders for proper distribution, protection and management of the sheep as directed by the Annual Operating Plan.
3. Sheep will not be shaded on or near water. No salting will take place within 1/4 mile of streams, creeks, springs or seeps.
4. Sheep will be open-herded, and dogs will be used to a minimum to prevent heavy trampling and/or over-grazing.
5. All predator control will be in accordance with Federal and State Laws, regulations and animal damage control EIS. All permittees are encouraged to use non-lethal means to reduce predator problems.
6. Camps must have a serviceable axe and shovel for fire control. Each camp will be kept clean; litter picked up and properly disposed of off the Forest. Holding pens, corrals, or mangers used for riding stock, or the sheep, will be removed or cleaned up when the camp is relocated or when the temporary facility is no longer needed. The officer in charge will approve the location for temporary corrals prior to installation.
7. Dead livestock on Forest Service administered land will be moved 300 feet away from roads and live streams.
8. All sheep will be counted prior to entering the Forest or at a location designated by the Forest Service, unless expressly waived by the Forest officer in charge.

These AMPs would incorporate practices that exemplify good range management. The emphasis of this alternative is to intensify management efforts to improve resource conditions while sustaining the livestock operations. Intensified management, revised utilization standards, and updated Allotment Management Plans may affect livestock operation costs. Under this proposal, there is a reduction of 280-HM from the current permitted numbers and seasons of use. Timing and intensity of livestock grazing would be the key elements to implement forage utilization standards specified in the Forest Plan (1986). Under this alternative 2490 head months of grazing would be permitted. Table 2.3 shows the proposed permitted and proposed improvements and changes.

Table 2.3 Little Pete’s Hole Allotment Proposed Action AMP Modification.

Allotment	Permitted Use	New Structural Improvements	Total Acres / Capable Acres	Changes
Little Pete’s Hole	7/17-9/30 1000 Ewe/lamb 747 AUM’s 2490HM	2 spring protections Post and rail construction See locations below in Figure 2.4	5630/3920	Six pasture deferred rotation grazing system.

Figure 2.4 Little Pete’s Hole Allotment Proposed Action Improvements



Mitigation Measures for Alternative 2

The analysis documented in this EA discloses the possible adverse impacts that may occur from implementing the actions proposed under each alternative. Measures have been formulated to mitigate or reduce these impacts. These measures were guided by the direction from the Forest Plan (1986) previously described (in this chapter and in Chapter 1).

If cultural resource site were located during management improvement operations, operations would cease until the Forest Archeologist evaluates the site (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 ([Archeologist Report, 2002](#)).

Alternative 3 (No Graze)

Livestock grazing would be phased out on this 5627 acres area. New term grazing permits would not be issued as current permits expire. In ten years this area would not provide any grazing for domestic livestock. This alternative was developed to respond to the issues and concerns of those who believe that livestock grazing on the National Forest Lands conflicts with other resources to the degree that total elimination of the livestock is needed to adequately resolve conflicts.

There would be no need for applying livestock grazing standards and guidelines to this portion of the National Forest. All range structural improvements would be removed, as budget allows. Monitoring program would be developed, as budget allows, determining changes in riparian soils, planting species compositions, and riparian function. Uplands would also be monitored to assess changes in soil productivity, plant species composition, and overall health.

Alternatives Considered but Eliminated from Detailed Study

One additional alternative was considered during the planning process, but has not been included in the EA for detailed study. This alternative is the same as Alternative 2 with the exception of standards and guidelines not found in the Forest Plan standard and guidelines (1986). The alternative is described briefly in the appendix along with the reasons for not considering it further.

Range of Alternatives Considered

The range of alternatives was defined by the “purpose and need”, “decision to made,” Forest Plan direction, and the issues received from public involvement. Alternative development is “issue” driven. Alternative 1 is the no-action alternative, under which the project area would have no change, and would remain subject to the current AMP. Alternative 2 the Proposed Action, considers the purpose and need for action and provides site-specific mitigation. Alternative 3 was developed to respond to the issues and concerns of those who believe that livestock grazing on the National Forest Lands conflicts with other resources to the degree that total elimination of the livestock is needed to adequately resolve conflicts. With Alternative 3 only natural or ongoing changes (succession and management activities) would occur. These three alternatives address all issues received from scoping and represent a reasonable range of alternatives according to NEPA.

Chapter 3

Affected Environment

This section summarizes the physical, and biological, affects to the resource in the project area and is the baseline for the comparisons of Chapter 4. Despite the affected in the title, this chapter does not present the effects of the alternatives. This chapter addresses the resources (Issues) in Chapter 1. It also includes other concerns that need to be addressed in this chapter that were not identified by the IDT as issues that affect the decision to be made or develop alternatives to the proposal.

SIGNIFICANT ISSUES

Issue 1: Water Resources and Soil Productivity

Analysis Area

The analysis area lies within the Straight Canyon drainage. Precipitation ranges from 12 inches a year at lower elevations to greater than 30 inches at higher elevations. From 1983 to the present we have seen years of high moisture to years of sustained drought.

The drainages within the analysis area provide culinary water for three communities in Emery County. The water is also used for irrigation and energy production. Joe's Valley reservoir stores water for the various purposes.

The soils have developed mostly on parent materials derived from sandstone and shale of the North Horn, Flagstaff limestone, and Price River formations. The soils on the shaley materials generally have textures of silt loam to silty clay, with silty clay loam being most common. The subsoils tend to have higher clay content than the surface soils. Most of the capable and suitable range is on these finer textured soils. The soils on steep slopes tend to be stony and shallow to moderately deep. Rock outcrops are present on some of the incapable range where slopes are very steep.

Under the aspen (*Populus tremuloides*), snowberry (*Symphoricarpos oreophilus*), and sagebrush (*Artemisia* species) vegetation the soils typically have thick, dark colored surface layers. They are fairly high in organic matter and nutrients. The dark colored soil (mollic epipedon) ranges in thickness from about 10 to 20 inches. Permeability is moderate to slow, and the erosion hazard rating is moderate where slopes are less than about 30%. On steeper slopes the erosion potential is moderately high to high. Most of the soils have a moderate susceptibility to compaction by livestock.

On the steep south facing and east facing slopes supporting oak brush (*Quercus gambelii*), mountain mahogany (*Cercocarpus montanus*), and other mountain brush the soils are shallow to moderately deep with sandy loam to clay loam textures and dark colored topsoils that are about 6 to 10 inches in thickness. They are typically stony and somewhat droughty. There is a high runoff potential and the soil erosion potential is high if adequate cover is not maintained. Portions of this type are incapable for grazing due to the excessively steep slopes and rock outcrops.

Under the conifer type the soils are typically a cobbly sandy loam or loam at the surface, and cobbly loam or clay loam in the subsoil. They are generally moderately deep (20 to 40 inches). Dark colored topsoil ranges from about 4 to 10 inches in thickness. A light colored, leached soil horizon is commonly found below the topsoil. These soils are of limited extent on steep, north facing slopes (Larsen, D.).

Riparian area soils are found along drainages where soils are wet most of the time. Over most of the area the soils are well drained to somewhat excessively drained.

Soil conditions on the grazed lands reflect the effects of past livestock use. There has been some loss of topsoil by erosion and some changes in surface soil structure. Soil monitoring needs to be conducted to more clearly assess the soil condition, however range trend studies indicate that soil quality is improving in many areas as is evident by increasing production.

The amount of bare ground, or exposed soil, is greater than desirable on tarweed and grass/forb and tall forb sites. In general, as the amount of tarweed increases and other species decrease, the amount of bare ground increases. There is also the contribution of exposed soil from gopher activity. Soil erosion is primarily in the form of raindrop splash and sheet erosion.

Areas needing improvement in vegetation and watershed condition are sites that are typically along ridge tops and upper convex slopes interspersed with aspen and aspen/mixed conifer stands in a mosaic pattern at elevations of about 8800 to 9300 feet. Sheep grazing and wildlife (deer and elk) foraging are major uses of these sites.

Water quality and quantity are important to down drainage users who draw water directly from most streams for culinary, agriculture and industrial purposes. Recently there has been growing concern over the Joes Valley Reservoir where sediments are beginning to impact storage capacity. The local geology is such that sediment production is naturally high and reduction of sediments where possible is helpful.

Many years of sheep use (grazing, trampling, and bedding) have resulted in a reduction in desirable vegetation, total forage production, ground cover, and soil quality. The presence of tarweed is a major indicator of the degraded vegetation and soil conditions. Although many sites have and are improving the need to improve deteriorated sites would benefit many forest users and resources.

There are long-term range trend studies in the project area. In addition to information about vegetation composition and production, the study records include percent bare ground and an erosion index rating. They were set up to monitor areas or conditions that were expected to respond to rangeland treatments or management changes. Typically the location of the studies is found in the poorest locations and the majority of the allotment is in better condition than would be suggested by the data.

The Regional soil quality guidelines suggest that each Forest establish local minimum effective ground cover guidelines to assure that detrimental erosion will not occur. Fifty percent is assumed to be the minimum effective ground cover for all of the vegetation types in this analysis. Note that desired ground cover is greater than 50% for most vegetation types.

The Forest Plan sets a maximum allowable soil disturbance varying by slope (see Appendix). The ground cover and erosion index data available for this analysis are time-series point data from individual study sites; this data does not lend itself to extrapolation or evaluation of the spatial extent of soil disturbance. No estimate of the spatial extent or severity of soil disturbance will be made in this analysis based on the studies. Professional judgment of the allotment as a whole based on land type associations from site and range inspections will be used for an over all median percent bareground for the cover types on the allotment.

The erosion index rating integrates ground cover, visual evidence of soil movement or rilling/gullyng into a numerical rating ranging from 0 to 50, with 50 being the best possible rating. The description associated with a rating of 30 is as follows: Plant and litter cover 40-59 percent. Bare soil openings 6-12" in size and frequently joined together with some noticeable soil deposition. The description associated with a rating of 26 to 29 is as follows: Sheet erosion active. Rock and pavement 1-15% cover. Based on these descriptions, a rating of 30 is used as a threshold for this analysis. Values less than 30 are of concern because some type of active erosion was observed.

The maximum for soil protection is assumed to be 50% for all vegetation types. The desired condition varies with the vegetation type. To meet or surpass desired condition, aspen should have no more than 10% bare ground, tall forb lands should have no more than 40%, grasslands should have no more than 50%, conifer should have no more than 20%, and mountain big sagebrush and mountain brush should have no more than 30% bare ground.

Much of the material eroded from upland areas is redeposited before reaching the stream channel network. Although surface erosion rates are often measured at the small plot scale, much less is known about chronic sediment delivery rates to channels (Reid, 1993). In the introduction for a report documenting a watershed scale sediment assessment, the authors succinctly describe the complications of getting eroded soil to the stream network.

“Only a small fraction of the soil moving on hillslopes is actually delivered to streams (Edwards 1993; Wasson *et al.* 1996). This implies that most of the sediment travels only a short distance (Parsons and Stromberg 1998) and is deposited before leaving the hillslope. In general, the amount of sediment deposited is intimately related to the topography, climate, soil, vegetation cover, and land use conditions, which are all closely related to the hydrological processes. The travel time for transport of sediment across a field or hillslope is often longer than the duration of runoff-generating events so that runoff infiltrates and is not delivered to the stream, along with the sediment it carries. In some environments there is also patchy generation of runoff on impermeable areas which then infiltrates on other patches of high infiltration, often at sites with better cover. Topography can induce deposition through its influence on the capacity of overland flow to transport sediment. Reductions in gradient and the dispersion of overland flow can both cause deposition. Farm structures, such as contour banks and dams, can have similar effects, altering flow paths or trapping runoff. Deposition also results from abrupt changes to vegetation cover as runoff travels downslope. This causes deposition in backwaters and reduces the sediment transport capacity of flow (Hua Lu *et al.* 2003).”

Sediment also enters the stream channel network as large, episodic pulses from disturbances such as large fires or landslides. Over a period of one to many years, this sediment is distributed through the stream channel and may be transported out of the watershed (Lisle, 1997). Sediment

deposited in floodplains and at mouths of tributaries by episodic events is frequently remobilized as the stream channel adjusts and migrates in subsequent runoff periods.

Episodic events typically include woody debris and large rocks along with the finer-grained soil materials. Redistribution of this mixed debris downstream may result in more complex aquatic habitat in some stream systems as logs and rocks alter the flow paths in the channel and form pools and pocket water features. In contrast, the finer-grained material annually eroded from upland areas that do reach the stream network serves as a chronic source of sediment. Without the larger debris, it is more likely to result in a loss of complexity as fine sediments fill features like pools (Reeves, 1997).

Literature about the direction and rate of change for rangeland communities following modification or cessation of grazing is limited. The papers reviewed concluded that community and individual species dynamics are very site-specific and often contradictory (Alzerreca-Angelo, 1998; Vesk, 2001).

In an assessment of the dynamics of a southwest Utah shadscale community, Alzerreca-Angelo et. al. (1998) arrived at some conclusions that seem generally applicable beyond the shadscale community:

- climate appears to have a greater effect on ground cover than other factors;
- grazing appears to have less effect on cover in wet years;
- grazing management, soil characteristics, and climate all contribute to vegetation changes but does not individually explain all observed changes;

The authors (Alzerreca-Angelo et. al., 1998) conclude with the following statement. “For total cover and for many individual species, grazing appears to have affected the rate more than the direction of change. This fits the growing realization that climate may cause rapid shifts in rangeland vegetation that may or may not interact with grazing effects.”

Increasing the amount of organic ground cover is the primary way that rangeland soils are improved. Organic ground cover improves infiltration, reduces runoff and erosion, and improves the probability that slope and riparian vegetation will trap material eroded upslope.

Issue 1: Water Resources and Soil Productivity

- a. Forest Plan Desired Future Condition (Forest Plan, page III-11): Maintain a diversified vegetative cover component to emphasize watershed, wildlife and fisheries values.
- b. Existing Condition and Trend:

Soil Stability and Trends: Some areas on this allotment have excessive bare ground that need to be reduced in the future, especially on suitable rangelands. This can only be accomplished by reducing forage use and increasing litter. Areas of particular concern are the benches and upper basins.

Water Quality, 303(d) listings:

No streams are on the state 2004 list.

Land Stability and Head Cutting

The Slide Lake slide is located on the eastern edge of the allotment. It is approximately 1/2 mile long and 300 yards wide and has been active for many years (pre 1972). As the toe of the slide enters Seely Creek it has been the main source of sediment to Joes Valley Reservoir near the Joes Valley Marina. Several smaller, and somewhat stable, slides occurred on the allotment following 100 year flood events between 1982 and 1984. Smaller gullies are still in the process of stabilizing themselves. (See Beaver Dams study)

Figure 3.2 Upland Range Vegetation on Little Pete’s Hole Allotment

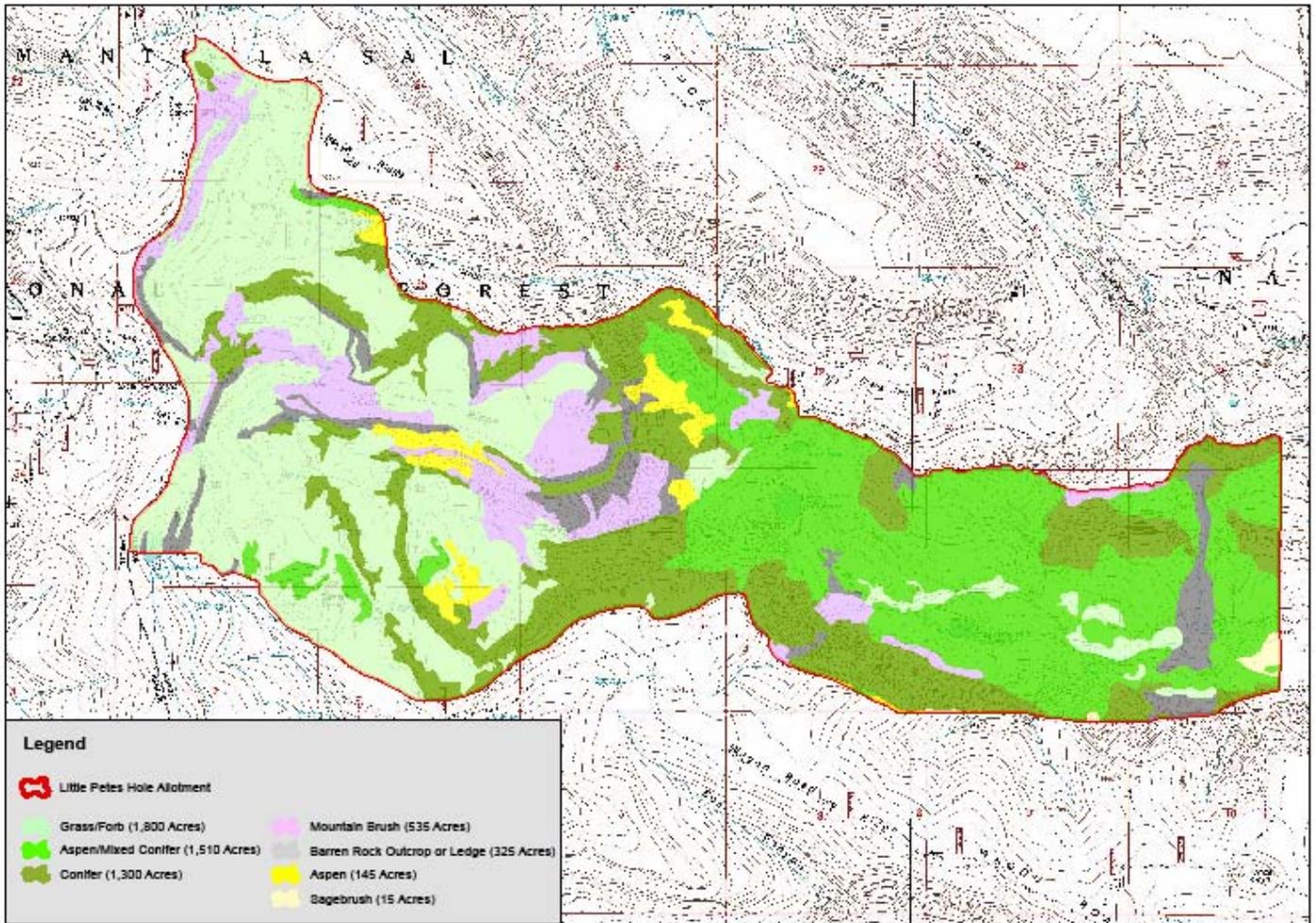


Table 3.2 Cover Types in Acres

Grass/Forb	Aspen Mixed Conifer	Conifer	Mountain Brush	Barren	Aspen	Sagebrush
1800	1510	1300	535	325	145	15

Conifer are made of: Englemann spruce, subalpine fir, and Douglas fir.
 Mountain brush is mostly snowberry and service berry.

Land slide – 73 acres. Streams – 21.6 miles. Water bodies – 7 acres

- a. Forest Plan Desired Future Condition (Forest Plan, pages III-8-11): Manage for stable to gradually upward vegetative trends of a diverse mixture of productive plant species. Use Integrated Pest Management (IPM) techniques to prevent establishment of new infestations of noxious weeds and to control existing infestations.
- b. Existing Condition and Trend:
 Alpine: No alpine vegetative communities are found within this allotment.

Uplands (Mtn. brush, aspen, sagebrush, grasslands, tall forb, etc.): Toms Ridge study (1980 to 2004): There has been a loss of desirable plants and an increase in least desirable plants since 1980, indicating a downward trend. There is also a decline in good forage plants and an increase in poor forage plants. Speices diversity has increased from 13 to 20 plants. Many are poorer plants but should be in the final plant community. Total ground cover has more than doubled to 46 percent. The erosion index is steadily improving from 31 to 33, that indicates slight and local erosion. Production is increasing indicating improving soil conditions.

Seely Creek study (1976 to 1996): Vegetative trends are stable, although production has increased indicating improving soil productivity. Species diversity has increased from 20 to 27 plants. Tarweed has not been seen for several readings. Bare soil has declined but still remains high at 80 percent. The erosion index has not changed, soil movement is moderate.

Beaver Dams (1976-1994): This study was not read in 1996, but the 1994 reading indicated a stable vegetative trend. Bare soil has been reduced but remain high at 80 percent. When the area was reviewed in 1998, gullies appear to be healing by some pedestalled plants are evident and considerable bare ground remains. Fringe areas near aspen are 2 to 3 times more productive than the opening.

Ninety percent of the spruce are dead due to sprune beetle. This is releasing quaking aspen but increasing downfall.

Increaseing downfall east of Petes Hole Reservoir is confining grazing to several small openings. It was found that these openings were being overuse and were greatly depleted. The number of days of use was reduced and the area has only being used to trample seed. It has improved over the last 3 years.

Cultural Treatments: Portions of the area south of Seely Creek Guard Station were drilled with grasses in 1981. This project was unsuccessful. In the early 70's, the area northwest of Soup Bowl was seeded. Although smooth brome patches are present few seeded species can be found. Natives are increasing in this opening.

Exclosures

East of Skyline Drive on Tom’s Ridge (Little Pete’s Hole Allotment) an exclosure is located near the middle of the analysis area. It is a 100-foot by 100-foot exclosure established in the early 1970’s. A long term monitoring transect was established here in 1976 and had been read periodically since establishment. The exclosure is accessible to wild ungulate grazing; however, as it is located on a well-vegetated open ridge top, it is questionable that deer or elk would make an effort to jump into the exclosure. No pellet groups were noted in the exclosure when data was collected in late summer of 2004. Some gopher activity was seen inside and outside the exclosure.

Table 3-3 Toms Ridge Exclosure (LP-1 Study Method- Site Analysis 8/11/04)

Indices	Inside the Exclosure	Outside Exclosure
Species Composition		
% Grasses	9	45
% Forbs	91	55
% Shrubs	0	0
Ecological Rating		
% Early Plants	.4	20
% Mid Seral Plants	94.5	75
% Late Seral Plants	5.1	5
# of Grass Species	3	5
# of Forb Species	12	13
# of Shrub Species	0	1
Cover		
% Overstory Shrubs	0	0
% Overstory Grass/Forb	70	58
% Bare Ground)	36	70
% Rock/Pavement) 100%	0	0
% Vegetation)	9	8
% Litter)	54	22

This exclosure displays the difference in ground cover between sheep grazing and no sheep grazing. It also displays greater species diversity outside than inside. Tarweed (Madia glomerata) is 1% of the species composition outside but was absent inside. The long term transect outside the exclosure indicates increasing production, improved ground cover and reduced erosion. However, it also indicates a loss of desirable vegetation from 1996 to 2004 with an increase in least desirable plants, due to an increase in dandelion (Taraxacum officinale). This may be a response to the recently severe drought. Two tall forb species have become established at the site: Lathyrus leucanthus and Thalictrum occidentale. At this site grazing is resulting in lower ground cover and greater species diversity.

Range analysis transects were sampled from 1960 to 1980. This range reflects the variation in environmental factors as well as the effects of disturbance. This data is the baseline data used to determine grazing capacity. Capable rangeland is defined as range that is accessible and could be grazed on a sustained-yield basis without damage to the resources (R4 definition). The site

productivity and soil stability (i.e., erodibility, topography, and ground cover) were factors considered when the allotments were mapped for capability. Effective-implementation monitoring is intended to monitor the long-term results of livestock grazing. Long-term trend evaluation (as described above and Chapter 2) is included in this analysis. The primary intent of effective-implementation monitoring is to determine if livestock management is providing progression toward the desired future condition (as desired in Chapter 1).

Resources of Concern

Wildlife Habitat and Management Indicator Species

Threatened and Endangered Species – that are considered for the Manti- La Sal National Forest Little Pete’s Hole allotment

Animals

Canada Lynx (*Lynx canadensis*)- Considered. Large tracts (at least 20 sq. mi., but even larger for a breeding population) of suitable habitat. The USFWS has now concluded that lynx that occur in Utah are dispersers rather than residents because there is no evidence of lynx reproduction in Utah and most of the few existing records correspond to cyclic population highs (USDI 2003). Suitable lynx habitat in the Southern Rockies is generally within the sub-alpine and upper montane forest zones between 8,000 and 12,000 feet elevation which are dominated by sub-alpine fir and Engelmann spruce (Ruediger et al. 2000).

Utah Prairie Dog (*Cynomys parvidens*) - Not Considered. Utah prairie dogs are found in areas where there are deep, well-drained soils; burrows extend straight down for about 10-15 ft. and then branch into horizontal tunnels. They feed on insects (particularly cicadas), where available. Their preferred vegetative food type is alfalfa, but they generally prefer grasses to forbs and shrubs. Moist palatable forage must be available throughout the summer. This species is not found in or near the project area; therefore, the proposed project will have no effect on the Utah prairie dog (UNHP 2003).

Yellow-billed Cuckoo (*Coccyzus americanus*) - Not Considered. In Utah, nests at elevations of 2,500 to 6,000 feet. Requires large tracts (100 to 200 acres) of contiguous riparian nesting habitat (Parrish et al. 2002).

Plants

Heliotrope Milkvetch (*Astragalus montii*) - Not Considered. *Astragalus montii* was first discovered by Monte Lewis and Robert Thompson in 1976, and was listed as threatened in 1987. Its habitat is high elevation (10,500 to 11,000 ft.) limestone barrens derived from the Flagstaff Geologic Formation. All suitable habitat sites on the MLNF have been surveyed for populations of this species; it is known to occur in three populations on the MLNF. None of the three populations occur within the Little Pete’s Hole S&G allotment (USDI FWS 1987, USDI FWS 1995).

Sensitive Species- Regional Forester Identified Sensitive Species.

Animals

Bald Eagle (*Haliaeetus leucocephalus*) - Considered. The U.S. Fish and Wildlife Service have published the final rule to remove the Bald Eagle from the list of threatened and endangered species under the Endangered Species Act. The final rule was published in the federal register on July 9, 2007; the rule became effective on August 8, 2007 (USDI 2007b). Bald eagles may occur incidentally while in transition during migration or dispersal during late fall or early winter months, prior to freeze over. These occurrences would only be incidental and of short duration, and the proposed project would not alter bald eagle habitat.

Bonneville Cutthroat Trout (*Oncorhynchus clarki utah*) - Not Considered. Bonneville cutthroat trout (BVCT) range from high-elevation streams with coniferous and deciduous riparian trees to low-elevation streams in sage-steppe grasslands containing herbaceous riparian zones to lakes. BVCT primarily occur in small headwater streams and slow, deep water with vegetated stream banks which provide shade, and bank stability (Nature Serve 2007). BVCT are not found in the proposed project area.

Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*) - Not Considered. Colorado River cutthroat trout (CRCT) require cool, clear water with well vegetated stream banks which provide cover, shade, and bank stability. CRCT tend to occupy headwater stream areas, especially when other trout species are present (Nature Serve 2007).

Columbia Spotted Frog (*Rana luteiventris*) - Not Considered. Spotted frogs are most commonly found in cold, still, permanent water in such habitats as marshy edges of ponds or lakes, in algae-grown overflow pools of streams, and near flat-water springs with emergent vegetation. The spotted frog may move considerable distances from water after breeding, often frequenting mixed conifer and sub alpine forests, grasslands, and brush lands of sage and rabbit brush. No spotted frogs have been found on the Manti – La Sal National Forest, and they are not known or thought to occur on the Forest (Crockett 2006).

Flammulated Owl (*Otus flammeollus*) - Considered. Flammulated owls are associated with mature pine or mixed conifer forests with a ponderosa pine and/or Douglas fir component (McCallum 1994). There is suitable habitat for flammulated owls found in the project boundaries.

Greater Sage Grouse (*Centrocercus urophasianus*) - Not Considered. Sage grouse are generally found where there are large tracts of sage brush habitat with a diverse and substantial understory of native grasses and forbs, or in areas where there is a mosaic of sagebrush, grasslands, and aspen. Wet meadows, springs, seeps, or other green areas within sagebrush shrublands are generally needed for the early brood-rearing period (Crawford et al. 2004). There is no suitable nesting or foraging habitat within the allotment.

Northern Goshawk (*Accipiter gentilis*) - Considered. Northern Goshawks nest in boreal forest of north central Alaska and northern Canada to western montane forests in the United States and northern Mexico. In Utah, most nests can be found in mid-elevation sites occupied by quaking aspen or coniferous forest (Graham et al. 1999).

Peregrine Falcon (*Falco peregrinus*) - Not Considered. Peregrine falcon's average foraging distance from the eyrie extends out to 10 miles, with 80 percent of peregrine falcon foraging

occurring within a mile of the nest (Spahr et al. 1991). The closest known peregrine falcon nest is located approximately 3.5 miles from the proposed project.

Spotted Bat (*Euderma maculatum*) - Considered. In Utah, the spotted bat is likely found throughout the state. It is known to use a variety of vegetation types from approximately 2,500 to 9,500 feet, including riparian, desert shrub, spruce/fir, ponderosa pine, montane forests and meadows. Spotted bats roost alone in rock crevices high up on steep cliff faces (Oliver 2000).

Three-toed woodpecker (*Picoides tridactylus*) - Considered. Three-toed woodpeckers use forests containing spruce, grand fir, ponderosa pine, tamarack, and lodge-pole pine. There are conifer stands within the project boundaries that would support the three-toed woodpecker (UCDC 2007).

Townsend's Big-eared Bat (*Plecotus townsendii pallescens*) - Considered. Townsend's big-eared bats use buildings, caves, and mines as day roosts, night roosts, and maternity roosts. In Utah, wintering habitats of this species is better known than any other bat species, where it is well known as a hibernator in Utah utilizing caves and mines as hibernaculum (Oliver 2000). This species uses a variety of habitat in Utah including: desert scrub, pinyon/juniper, sagebrush, mountain brush, mixed forest, and ponderosa pine.

Plants

Arizona Willow (*Salix arizonica*) - Not Considered. *Salix arizonica* occurs in wet meadows along perennial streams and occurs only in the Muddy Creek drainage on the MLNF (Nature Serve 2007, UNPS 2007, USDA NRCS 2007). Arizona willow does not occur in the project area, therefore, will not be impacted.

Creutzfeldt-flower (*Cryptantha creutzfeldtii*) - Not Considered. *Cryptantha creutzfeldtii* occurs in shallow, rocky, heavy clay soils; open Mancos shale slopes. It is endemic to central Utah in Carbon and Emery Counties at 5,000 to 6,500 ft. elevation (Nature Serve 2007, UNPS 2007, USDA NRCS 2007, USU 2007). The proposed project is located above the elevation range for this species and is not found within the project area; therefore, the proposed project will not impact the Creutzfeldt-flower.

Carrington Daisy (*Erigeron carringtoniae*) - Not Considered. *Erigeron carringtoniae* occurs in limestone outcrops and escarpments in subalpine vegetation type on wind blown ridge tops and snowdrift sites at high elevations of the Wasatch Plateau (9,000 to 11,000 feet) (UNPS 2007, USU 2007, USDA NRCS 2007). This species is not found within the project area.

Canyon Sweetvetch (*Hedysarum occidentale* var. *canone*) - Not Considered. *Hedysarum occidentale* var. *canone* is found on sites with a high water table, near springs or stream beds within the pinyon/juniper vegetation type at 5,500 to 7,000 ft. elevation. River birch and squaw brush are associated species. It is endemic to Duchesne, Carbon and Emery Counties (Nature Serve 2007, UNPS 2007, USDA NRCS 2007). This species is not found in or near the project area.

Link Trail Columbine (*Aquilegia flavescens rubicunda*) - Not Considered. *Aquilegia flavescens rubicunda* occurs near spring seeps and perennial wetland sites on the east side of the Wasatch Plateau (Nature Serve 2007, UNPS 2007, USDA NRCS 2007). This species is not found in the project area; therefore, the proposed project will not impact the link trail columbine.

Maguire Campion (*Silene petersonii*) - Not Considered. *Silene petersonii* occurs at high elevations (10,000 to 11,800 ft.) on open calcareous and igneous soils derived from Flagstaff Limestone (Nature Serve 2007, UNPS 2007, USU 2007, Flora 2007, USDA NRCS 2007). This species is not found within the project area and there is no suitable habitat within the project area.

Musinea Groundsel (*Senecio musiniensis*) - Not Considered. *Senecio musiniensis* occurs on limestone barrens and talus slopes of the southern Wasatch Plateau (Nature Serve 2007, UNPS 2007, USDA NRCS 2007). There are no limestone barrens or talus slopes in the project area. This species is not found within the project area.

Management Indicator Species that could occur within the project area on the Ferron/Price Ranger District of the Manti-La Sal National Forest.

Rocky Mountain Elk (*Cervus canadensis*) - Considered. Elk are known to use the area in late spring, summer, and fall. The habitat within the project area is considered crucial summer habitat by the UDWR (UDWR GIS 2006).

Mule Deer (*Odocoileus hemionus*) - Considered. Mule deer are known to use the area in late spring, summer, and fall. The habitat within the project area has portions that are crucial summer and winter habitat UDWR (UDWR GIS 2006).

Northern Goshawk (*Accipiter gentilis*) - Considered. See BA/BE for effects analysis.

Golden Eagle (*Aquila chrysaetos*) - Not Considered. Golden eagles do not nest within the proposed project area.

Macro-invertebrates (aquatic Insects) - Considered. There are perennial streams within the project boundaries.

Neotropical migratory birds (NTMBs) listed as priority species by the Utah Partners in Flight Avian Conservation Strategy, Birds of Conservation Concern and Comprehensive Wildlife Conservation Strategy that could occur on the Manti Division of the Manti-La Sal National Forest.

Black Swift (*Cypseloides niger*) - Not Considered. Black swifts have been seen on the Manti Division of the Manti-La Sal NF within the Little Pete's Hole area however, there is no nesting habitat so therefore any black swifts would only be passing through.

Black-throated Gray Warbler (*Dendroica nigrescens*) - Not Considered. There is no suitable habitat within the project area and this project is above the elevational range for this species.

Brewer's Sparrow (*Spizella breweri breweri*) - Not Considered. Brewer's sparrows breed primarily in shrub-steppe habitats and do occur on the Manti Division of the Manti-La Sal NF but, there is no suitable habitat for brewer's sparrow within this allotment.

Broad-tailed Hummingbird (*Selasphorus platycercus*) - Considered. There is suitable secondary breeding habitat within the project area (Manti-La Sal National Forest Wildlife Models 2004).

Ferruginous Hawk (*Buteo regalis*) - Not Considered. May occur at lower elevations on the Manti Division of the Manti-La Sal NF. However, the proposed project is located above the elevation range of the ferruginous hawk. The ferruginous hawk is not likely to occur within the project area.

Gray Vireo (*Vireo vicinior*) - Not Considered. This allotment is above the elevation range of the Gray vireo.

Sage Sparrow (*Amphispiza belli nevadensis*) - Not Considered. There is no suitable habitat within the project area.

Virginia's Warbler (*Vermivora virginiae*) - Considered. Virginia's warblers are known to occur on the Ferron/Price Ranger District of the Manti-La Sal NF, but they are not known to nest here.

Yellow-billed Cuckoo (*Coccyzus americanus*) - Not Considered. The proposed project is above the elevation range of this species, and there are no large tracts of riparian habitat in the project area. The yellow-billed cuckoo is not likely to occur within the project area.

Three-toed Woodpecker (*Picoides tridactylus*) - Considered. See BA/BE for effects analysis.

Pinyon Jay (*Gymnorhinus cyanocephalus*) - Not Considered. There are no Pinyon/juniper woodlands within the grazing allotment.

Williamson's Sapsucker (*Sphyrapicus thyroideus*) - Considered. There is suitable habitat including conifer forests and aspen stands within the specified allotment.

Prairie Falcon (*Falco mexicanus*) - Not Considered. There is no suitable habitat within the grazing allotment.

Swainson's hawk (*Buteo swainsoni*) - Not Considered. The project area is above the elevation range of Swainson's hawk. There is no suitable nesting or foraging habitat within the project area.

Northern Harrier (*Circus cyaneus*) - Not Considered. There is no suitable nesting or foraging habitat within the project area.

Short-Eared Owl (*Asio Flammeus*) - Not Considered. There is no suitable habitat within the project area.

Sage Thrasher (*Oreoscoptes montanus*) - Not Considered. The project area is above the elevation range for the sage thrasher.

Environmental Assessment for Little Petes Hole Allotment

Osprey (*Pandion haliaetus*) - Not Considered. There is a known nest approximately 3 miles away from the allotment boundary. There is no foraging or nesting habitat within the project area.

Lewis's Woodpecker (*Melanerpes lewis*) - Not Considered. There are no Ponderosa or Cottonwood stands within the allotment.

Research Natural Areas

None on the allotment

Chapter 4

Environmental Consequences

Introduction

This chapter provides information concerning potential consequences to the environment. It also presents the scientific and analytical basis for the comparison of alternatives presented in Chapter 2. In Chapter 3, each resource potentially affected by the proposed action or alternatives is described by its current condition and uses. These resource descriptions also include descriptions of and reasons for the spatial and temporal boundaries of cumulative effects analyses.

Each significant issue has a discussion of the potential effects (environmental consequences) to the resource associated with the implementation of each alternative. All significant or potentially significant effects, including direct, indirect and cumulative effects, are disclosed. Effects are quantified where possible, and qualitative discussions are also included. The means by which potential adverse effects will be reduced or mitigated are described (see also Chapter 2).

The discussions of resources and potential effects take advantage of existing information included in the Forest Plan (1986), project-specific resource reports and related information, and other sources as indicated. Where applicable, such information is briefly summarized and referenced to minimize duplication. The project record for the Little Pete's Hole S&G Allotment Management Plan Revision project includes all project-specific information, including resource reports, and other results of field investigations. The record also contains information resulting from public involvement efforts. The project record is located at the Ferron/Price Ranger District Office in Ferron, Utah, and is available for review during regular business hours. Information from the record is available upon request.

Analyzing Effects

Environmental consequences are the effects of implementing an alternative on the physical and biological environment. The Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) includes a number of specific categories to use for the analysis of environmental consequences. Several are applicable to the analysis of the proposed project and alternatives, and form the basis of much of the analysis that follows. They are explained briefly here.

Direct, Indirect, and Cumulative Effects

Direct environmental effects are those occurring at the same time and place as the initial cause or action. Indirect effects are those that occur later in time or are spatially removed from the

activity, but would be significant in the foreseeable future. Cumulative effects result from incremental effects of actions, when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.

Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. Cumulative effects analysis involves assumptions and uncertainties. Cumulative effects analysis provides the opportunity to evaluate future Forest management options in the context of other developments in the analysis area.

The ID Team identified the past, present, and reasonably foreseeable future actions within the analysis area. Chapter 3, Specialist Reports (2007), and the Affected Environment provide more specific information regarding many of the actions shown below.

Past Actions

- Elk have increased in the analysis area.
- Natural fires have occurred over time within the analysis area. The majority of the project area was burned over by wildfire in the latter part of the 19th century.
- Vegetation succession, wildfire suppression, and weather events have shaped plant communities.
- Insect and disease activity has persisted in forested stands throughout recorded time. Primary insect and disease problems within the project area include spruce bark beetle (spruce), Douglas fir beetle (Douglas fir), and dwarf mistletoe (Douglas fir).
- Blow down has occurred in forested stands.
- Drought cycles, most notably in the 1930s and early 2000s have occurred.
- Timber has been harvested on about 925 acres in the past.
Roads and trails have been constructed in parts of the project area.
- Hunting and fishing has and continues to occur in the area.
- Recreation use has increased and use patterns have changed. Motorized technology has changed.
- Noxious weed invasion, carried by wind, humans, machinery, and animals has occurred.
- Domestic livestock have grazed most of the area.
- Wildfires have been suppressed over the past ninety years.
 - Management actions have removed, eroded, and compacted soils, and in localized areas have reduced soil productivity, both short- and long-term.
- Paleontological investigations and research have occurred.
- Water developments and water diversions are in place.

Present Activities

- Insect and disease activity persists in forested stands.
- Vegetation succession, wildfire suppression, and weather events are Shaping plant communities.
- Drought cycles continue to influence vegetation communities.
- Wildfires occur.
- Recreation, including ATVs, snowmobiles, hunting, camping, and wildlife viewing, is available and will continue to increase as the population grows.
- Hunting and fishing continues to occur in the area.
- Water developments and water diversions are in place.
- Prescribed fire is being used as a vegetation management tool on the Forest.
- Noxious weed invasion continues. Two Cooperative Weed Management Groups are established within this project area.

- A shift in management emphasis and implementation of Best Management Practices has reduced soil impacts from timber harvest, mining, road construction, and livestock grazing. Impacts to soils have increased from recreational activities and noxious weed spread. Localized areas of short-and long-term soil productivity loss continue to occur.

Reasonably Foreseeable Actions

- Insect and disease activity will continue in forested stands.
- Rural communities will continue to grow as the population along the Wasatch front expands south.
- Depending on the alternative selected with this analysis, livestock grazing may continue into the future.
- Hunting and fishing will continue on the Forest.
- Vegetation succession, wildfire suppression, and weather events will continue to shape plant communities.
- Recreation use will continue to increase into the future and use patterns will change with changes in the population and technology.
- An increase in the use of developed recreation sites and campgrounds is likely as the population increases.
- OHV use is likely to continue to increase due to changes in the population and technological advances.
- The Manti-La Sal National Forest will complete its Forest Plan Revision in the next year.
- Noxious weed invasion in the project area will continue into the future. Noxious weed abatement efforts will increase.
- The impacts on soils from recreational activities will increase.

Irreversible and Irretrievable Commitments

Irreversible commitments are decisions affecting non-renewable resources such as soils, wetlands, unroaded areas, and cultural resources. Such commitments are considered irreversible because the resource has deteriorated to the point that renewal can occur only over a long period of time or at a great expense, or because the resource has been destroyed or removed.

Available Information

There is less than complete knowledge about some of the relationships and conditions of wildlife, fish, forests, jobs, and communities. The ecology, inventory and management of a large forest area are a complex and developing science. The biology of wildlife species prompts questions about population dynamics and habitat relationships. However, the basic data and central relationships are sufficiently well established in the respective sciences for the deciding official to make a reasoned choice between the alternatives, and to adequately assess and disclose the possible adverse environmental consequences. New or improved information would be very unlikely to reverse or nullify these understood relationships.

Plans of Other Agencies

The CEQ regulation implementing NEPA requires a determination of possible conflicts between the proposed action and the objectives of Federal, State, and local land use plans, policies, and controls for the area. See the “Findings and Disclosures” section of Chapter 2 for a discussion of compliance with these laws. State compliance is also discussed at the end of Chapter 1.

Effects of the Significant Issues

Issue 1: Water resources And Soil Productivity

Factor Common to All Alternatives

Effects of livestock grazing on uplands are usually restricted to small concentrated areas where livestock bed, loaf under shade, water at developments, obtain salt, and trail along fence lines and driveways. The soils of these areas are compacted and have increased wind and water erosion due to reduced vegetative cover and increased bare ground (Clary, et al, 2000). As livestock range across the landscape, minor compaction can occur over broader areas, which is seldom enough for long-term degradation. Compaction from livestock is generally a short-term impact as these effects are often controlled by root action, frost-heave action, gopher action, and shrink swell. Some soils on the Little Pete's Hole allotment have inherently low productivity because of shallow depths to bedrock, droughty soil textures (excessively drained), or where the habitat type does not support rangeland use such as those in dense conifer stands. Other factors that contribute to low productivity are: areas of high pocket gopher activity, and snow banks at high elevations 9,500' to 10,000+').

Effects

Direct and indirect effects of Alternatives 1 and 2 were evaluated using percent bare ground. The Forest Plan monitoring direction for Range includes long-term range trend at permanently located study sites; the variation that would cause further evaluation and/or change in management direction is if significant differences in trend occur (Appendix A). The monitoring direction for project level soil disturbing activities does not specify a technique but does mention measurement of ground cover and soil displacement. The variation that would cause further evaluation and/or change in management direction is erosion in excess of soil tolerance limits (pg IV-8 to 9). Information about soil tolerance limits and the current condition relative to these limits is not available for the soils in the projects area. Instead, the erosion index rating, specifically ratings of less than 30, are assumed to indicate soil conditions that exceed acceptable soil loss because visible evidence of soil erosion is a factor considered in arriving at an erosion index rating of less than 30 (Range trend studies).

The Regional soil quality guidelines suggest that each Forest establish local minimum effective ground cover guidelines to assure that detrimental erosion will not occur. Fifty percent is assumed to be the minimum effective ground cover for all of the vegetation types in this analysis. Note that desired ground cover is greater than 50% for most vegetation types.

The measure is the number of acres in different community types with greater than 50% bareground from livestock grazing.

Table 4.1 Comparisons of Alternatives

MEASURE	ALTERNATIVE 1 NO-ACTION					ALTERNATIVE 2 PROPOSED ACTION	ALTERNATIVE 3 NO GRAZING
ISSUE 1: Water Resources and Soil Productivity							
Percent Bare Ground by land community type	Total Acres	Quantitative ² Research	Acres ³	Qualitative ⁴ Research	Acres		
Grass/Forb ¹	1800	70%	360	60%	1440	40-50% ⁷	<40-50%
Aspen Mixed Conifer ¹	1510	30%	680	20%	830	10%	<10%
Conifer	1300	20% ⁵		20%		20%	20%
Mountain Brush ¹	535	30%		30%		30%	<30%
Erosion Index ⁶			35		32		

¹These plant communities provide 95% of forage during the grazing season.

²Data derived from vegetative trend studies

³Number of acres that vegetative trend study represents in this community type on the allotment

⁴Data derived from range management specialist’s professional judgment (allotment inspections) of the mean % bareground of the remaining 1440 acres of the grass/forb community type and 830 acres aspen mixed conifer community type

⁵Ground cover a result of litter accumulation

⁶Erosion index for the Tom’s Ridge Exclosure (35) and mean for the remainder of the allotment (32)

⁷40% for grass community, 50% forb community type

Quantitative research is the systematic scientific investigation of quantitative properties and phenomena and their relationships. The process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships.

Qualitative research is descriptive in that the researcher is interested in process, meaning, and understanding gained through words or pictures. The process of qualitative research is inductive in that the researcher builds abstractions, concepts, hypotheses, and theories from details.

Alternative 1 (No Action – Continue as is):

Direct and Indirect Effects:

The allotments would continue on as at its present state (static state) or somewhat declining, depending on weather conditions. In drought conditions, such as the last few years, vegetation coverage would be more sensitive to grazing; regrowth would likely be slower and plant vigor reduced. This could lead to high erosion potentials if a hard rainfall (or rain on snow event) did occur on steeper slopes. On most of the allotment, the ground cover is adequate to hold the soil in place (approximately 70%), but there are areas of the allotment where more than 50 percent of soil is exposed (approximately 30%). For more information, please refer to Little Pete’s Hole long term administrative trend studies folder.

The erosion index rating integrates ground cover, visual evidence of soil movement or rilling/gullyng into a numerical rating ranging from 0 to 50, with 50 being the best possible rating. The description associated with a rating of 30 is as follows: Plant and litter cover 40-59 percent. Bare soil openings 6-12” in size and frequently joined together with some noticeable

soil deposition. The description associated with a rating of 26 to 29 is as follows: Sheet erosion active. Rock and pavement 1-15% cover. Based on these descriptions, a rating of 30 is used as a threshold for this analysis. Values less than 30 are of concern because some type of active erosion was observed. On two of the three long term trend studies the erosion index has an average rating of 30, over a 20-30 interval. Based on herbaceous biomass produce from year to year and the grazing intensity, active isolated erosion is present. It appears at the current permitted number and season and grazing rotation, we are not moving toward the desire condition on the allotment in a timely manner.

Alternative 2 (Proposed Action):

Direct and Indirect Effects

The difference that would be made between Alternative 1 and Alternative 2 is;

Incorporate permit terms and conditions that address effects of grazing to rangeland resources to provide for the progression of existing conditions toward desired conditions. (District management requirements Appendix A)

Change in capacity from 831 AUM's to 747 AUM's.

Revise existing AMP, to describe how livestock grazing would be conducted to ensure compliance with the decision(s) made as a result of this assessment and the Forest Plan.

Fence spring sources.

Increasing the amount of organic ground cover is the primary way that rangeland soils are improved. Organic ground cover improves infiltration, reduces runoff and erosion, and improves the probability that slope and riparian vegetation will trap material eroded upslope. The difference between Alternative 1 and Alternative 2 is based on the premise that by reducing livestock numbers and changing management practices (twice over to a deferred rotation system), plant cover and litter on the soil surface will increase, therefore improving infiltration and reducing runoff. Alternative 2 will have a positive effect on soil productivity by increasing the infiltration rate and reducing runoff at the site. Alternative 2 provides plants in the deferred units the opportunity to reach maturity and set seed to provide for seedling establishment, therefore increasing the frequency and density of plants on the site.

Alternative 3: (No Grazing):

Direct and Indirect

As far as just looking at the effects on the soils, this alternative would be the least damaging for the allotment in general. Areas in poor conditions would make the greatest change over time while area in better condition may not change or change more slowly.

Other than in small isolated areas where large wild ungulates could maintain existing conditions, no grazing would result in a reduction in forage use and vegetation disturbance. On depleted sites, change would be slow as soils continue to gain their productive potential and as seed sources develop. Less forage use would allow increased litter accumulation that would provide more soil protection. However, sites dominated by forbs, litter accumulation would be slow as forb litter is not very durable. At Jet Fox Reservoir (south of the allotment) the area has been

fenced to exclude sheep grazing from Manti City’s water supply. In this enclosure bare soil varied from 37% to 53% depending on production and growing conditions from 1987 to 2001 (Jet Fox). At the Becks Creek and Toms Ridge enclosures, litter has accumulated significantly reducing bare soil when comparing inside and outside the enclosures.

Table 4-2 Percent Ground Cover.

Enclosure	Inside	Outside
Becks Ridge	97.3	38
Toms Ridge	63.4	29.5

The majority of rangeland cover types are in a mid to late ecological status. In the short-term, these sites will continue to advance along their respective successional pathways at a short-term rapid rate than would be achieved with implementation of either Alternatives 1 or 2. Grazing-induced seral state would continue to be somewhat slower on certain sites due to the persistence of competitive species.

Alternative 3, areas in poor conditions would make the greatest change over time while area in better condition may not change or change more slowly. The number of acres in detrimental soil condition represented as a percent of the total suitable acres on the Little Pete’s Hole allotment would decline under this alternative at a faster rate than Alternative 1 and 2.

Cumulative Effects to All Alternatives

Cumulative effects would include all the disturbances mentioned above under Past, Present and Reasonable Foreseeable Actions (including livestock grazing) but would exclude administrative sites such as trail heads, system trails, system roads, official campgrounds and picnic areas, developed restroom facilities and other developed areas for public use and enjoyment. These predictive disturbances could change with natural caused events, such as debris flows, landslides or intense rain on snow events that can lead to large soil disturbances, but cannot be predicted before hand.

In general, Alternative 3 would have the best likelihood that sites within the allotment with less than desired ground cover and/or erosion index ratings would improve. While the rates of change would depend on current conditions and climate patterns, Alternative 3 should result in more rapid overall change.

For the majority of the allotment, Alternative 2 would be similar to Alternative 3 however the time span to achieve those goals may be extended. Alternatives 2 would result in improvement in ground cover based on a revised AMP. This would be due to the lower forage use proposed with Alternative 2. Alternative 2 provides the flexibility to make management changes, including forage use levels, deferred rotation system, and numbers and seasons of use, to achieve desired conditions. Therefore, changes can be made to improve ground cover in the allotment. However, the rate of change would be less than Alternatives 3.

Some upland areas of historic overuse, such as some ridgeline bed grounds, have not recovered and still have inadequate ground cover. Many of these areas are still used as bed grounds; however, herds are smaller and the grazing permit and annual operating instructions encourage no more than one night’s bedding in these areas. Recovery will come slowly at these sites and is partially dependent on the condition of surrounding areas and climate. Alternative 1 would likely have the slowest rate of recovery; Alternative 3 would have the most rapid. Alternatives 2&3

will objectively meet the same desired condition however the time frames to achieve that condition is subjective.

Bed grounds, herder camps, water troughs, and corrals would continue to be highly impacted sites. Most bed grounds have been established and are not expected to be depleted further. Due to the small size of many allotments and the lack of suitable bedding sites, one night bedding is not feasible. If these bedding sites increase in size, corralling at night could be considered. Generally, bed grounds result in increased bare ground and a loss of species diversity. Where bedding has stopped bed grounds slowly recover but species diversity is slow to develop compared to surrounding rangelands.

Herder camp locations would continue to be impacted sites. Herder camp sites increase bare ground in small areas but can rapidly recover once the camp is moved.

Water troughs are used to reduce impacts to water sources and to increase distribution of forage use in areas where water is lacking or in short supply. Short waterlines maybe used to put water where it is more usable. Escape ramps are installed and maintained in all troughs to reduce impacts to birds and small mammals. Impacts at water troughs would continue. New troughs would be expected to be installed reducing impacts to water sources. Livestock operators would continue to be responsible for maintenance.

Some short fencing maybe required to aid in control of the sheep. These fences tend to be places where a herder may not have access to control the sheep, or on roads and trails where the sheep can readily move from one site to another.

Natural processes are expected to continue as conifer encroaches into quaking aspen, and sagebrush. Aspen sprouting will continue to be variable and will be stimulated by prescribed fire or other treatment methods.

Irreversible and Irretrievable Commitment of Resources

There is no irreversible commitment of resources. Plant species expected to be in the area can be found in the area and vegetative trends indicate (Table 3-7) species composition is improving.

CHAPTER V Consultation and Coordination / Biography

The Forest Service consulted the following individual, Federal, State and local agencies, tribes and non-Forest Service persons during the development of this environmental impact statement:

ID Team Members:

Interdisciplinary Team

<u>Name</u>	<u>Title</u>	<u>Subject Area</u>
Mat Meccariello	NFMA/NEPA Team Leader	Range Management
Pamela Jewkes	Forest Fisheries Biologist	Fish and Riparian
Katherine Foster	Forest Hydrologist	Watershed/Water
Bob Thompson	Forest Ecologist T&E Plants (Retired)	Vegetation
Jeff Jewkes	District Wildlife Biologist	Wildlife and Species T&E
Kelle Reynolds	Forest Wildlife Biologist	Wildlife and T&E Species
Dan Larsen	Forest Soil Scientist (Retired)	Soils

Specialists Providing Technical Support

Bruce Ellis	Forest Archeologist (Former)	Cultural Resources
Fred Kaminski	District Fuels Mgt. Specialist (Former)	Fuels Management
Michael Davis	Forest Environmental Coordinator	NEPA Preparation
Terry Nelson	Wildlife Biologist (Former)	Wildlife and T&E Species
Michael Davis	Environmental Coordinator	NEPA

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Appendix A

Special Terms and Conditions

Management Practices. (List the specific management practices required of the permittee, such as salting, riding and movement of cattle, herding or bedding of sheep; or incorporate into the permit the specific allotment management plan or other document which outlines these practices in detail.)

Forest Wide Proper Use Criteria

A. Sheep Allotments

1. Uplands

<u>Use category</u>	<u>% use of key species</u>
Light Use	0-25%
Moderate Use	26-45%
Heavy Use	Greater than 46%

Moderate use is considered to be proper use.

2. Riparian Areas

Spring	50-60%
Summer	45-50%
Fall	30-40% or 4"-5" of stubble or regrowth

3. Soil Disturbance

<u>% Slope</u>	<u>% allowable soil disturbance</u>
0-25%	30%
26-40%	20%
41-60%	10%
61% or greater	5%

Special Terms and Conditions

Management Practices. (List the specific management practices required of the permittee, such as salting, riding and movement of cattle, herding or bedding of sheep; or incorporate into the permit the specific allotment management plan or other document which outlines these practices in detail.)

1. The Annual Operating Plan for each of the Allotments found in Term Grazing Permit # 30127D is hereby made part of this permit. It will contain specific management instructions pertaining to your livestock grazing on the Forest for each grazing season.
2. All trailing and trails on National Forest Service System land will be managed according to range readiness criteria.

Other. List the provisions and requirements deemed desirable pertaining to sheep band sizes, counting, tagging, dye branding, lambing, bucking, specific fire protection measures, etc.)

1. You must notify the District Ranger five days in advance of the date you will enter the forest to arrange for a count.
2. You must notify the District Ranger at least 45 days before the opening date of your allotment if you will not be able to graze full numbers on the allotment. At this time you will inform the Ranger of the number that will be grazed.
3. At the end of the grazing season, no later than October 15, you will return your completed Grazing Use Record to the District Ranger. This record will include on/off dates for each unit, number of sheep actually grazing each unit, losses, and all labor and expenses incurred in maintaining improvements on the allotment.

Responsibilities for Construction and Maintenance of Structural Improvements or for Range Rehabilitation. (List the specific responsibilities of the permittee; or incorporate into the permit the cooperative agreement, management plan or other document which sets forth these responsibilities in detail. Fully identify the particular document or documents.)

Maintenance Standards for Range Improvements

Stock water Developments - Troughs, Pipelines and Stock water Ponds

1. All spring source facilities should be adequately protected or fenced and fences maintained to prevent livestock from getting into the source or the head box.
2. Head box lids or covers shall be in place to prevent dirt, rodents or other refuse from getting into the head box.

3. All outlet pipes and valves from head boxes should be functioning and any leaking should be kept to a very minimum.
4. Water troughs will be kept at heights that make them usable to livestock. Troughs which become elevated from trampling livestock should be periodically backfilled to maintain a usable height.
5. Troughs which become uneven due to settling should be reset and leveled.
6. Bottom of troughs should be kept clear of the ground with at least 2" to 4" of clearance under the bottom of the trough to prevent rusting or decomposition.
7. Water should not be allowed to overflow the sides of the troughs. Overflow pipes must be kept clear. Overflow water will be piped away from troughs at least 50 feet. The end of the overflow pipe must be protected from trampling by livestock. Water from the overflow pipe must be directed away from the trough area.
8. Inlet and outlet pipe shall be protected by anchoring to the trough with single post next to the vertical pipe and a brace or pole supporting the horizontal pipe. Inlet and outlet pipeline will be buried as much as possible for their protection.
9. All troughs should be equipped with a floating board or pole secured near one end of the top rim of the trough and extend out into the trough far enough to provide a platform from which birds and rodents can escape or drink from the trough. It can also serve to help protect the tank from bursting from ice pressure.
10. Troughs, storage tanks and pipelines will be drained and cleaned periodically to prevent moss and debris buildup and damage from freezing.

Maintenance Standards for Range Improvements

Stock water Developments - Troughs, Pipelines and Stock water Ponds (Cont.)

11. Poles, posts and trough-framing materials used in the construction of the water development will be maintained, repaired or replaced as needed.
12. All above-ground pipeline supported structures will be maintained to keep the pipes at gradient and prevent sagging.
13. Pipelines with air and drain valves will need to have them covered with fine screen to prevent rodents and dirt from entering the pipe. Screens will be replaced as needed.
14. Pipeline leaks will be repaired or the damaged section replaced with materials similar to the original construction materials.
15. Pipelines with valve cover boxes will be kept covered and repaired when needed.

16. Stock water ponds will be kept clear of debris, floating logs, dead animals, etc. Spillways will be cleaned and maintained to prevent washing out or becoming plugged. Rodent damage and damaging vegetation on dams will be reported to the Ranger.

**Range Fences and Corrals
Maintenance Standards**

1. All broken wires will be spliced and repaired in such a manner that tension on a wire can be maintained. Wire splices will be made with 12 gauge size tie wire or type of wire used in initial Construction.
2. Broken or rotten posts, broken braces and missing staples will be replaced where and when needed to maintain the fence.
3. Wires will be restretched where needed.
4. Broken or missing stays will be replaced where needed.
5. The top wire on all range fences should be kept under 42 inches in height.
6. Staples should not be driven so deep into the post that they scar or create a weak spot in the wire.
7. All gates should be closed before livestock enter the grazing units and opened and tied back in the fall after livestock leave the allotment.
8. Wire gate tension should be sufficient to prevent the gate from sagging and still be easily opened and closed. Gate loops should be made from smooth wire, **not barbed wire**.

Range Fences and Corrals Maintenance Standards (Cont.)

9. Trees which fall on fences will be cut and removed when and where needed; wire if broken, will be spliced and restretched; poles if broken will be replaced.
10. Broken or rotten sections of log or pole fences and corrals will be replaced as needed.
11. Corrals will be kept clean of litter, in good repair, and in usable condition.

Sheep Allotment Herding Standards

1. The permittee or herd manager will provide sufficient riders or herders for proper distribution, protection and management of sheep on the allotment as required by the Annual Operating Plan.

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2. All bed grounds should not be used more than one night, except in emergencies or with prior approval of the Forest Officer in charge.
3. Sheep will not be bedded within 200 yards of any running stream or live spring. There may be some exceptions to this standard due to the topography of the allotment.
4. Sheep will not be shaded or salted on or near water.
5. Sheep will be open-herded, and dogs will be used to a minimum to prevent heavy trampling and over-grazing.
6. All predator control will be in accordance with Federal and State Laws and regulations.
7. All camps must have a serviceable axe and shovel for fire control. Each camp will be kept clean, litter picked up and either hauled off or disposed of. Holding pens or corrals used for riding stock will be removed or cleaned up when the camp is moved or relocated.
8. Dead livestock on Forest Service administered land within 300 feet of any live stream or road-way will promptly be removed and properly disposed of.
9. All sheep will be counted prior to entering the Forest or at a location designated by the Forest Service, unless this is expressly waived by the Forest Officer in charge in writing or orally.
10. The number of exempt pack and saddle stock needed for management of livestock purpose will be specified by the Forest Officer in charge.

Payment of Herding Expenses

1. The permittee will pay his/her proportionate share of costs incurred by the herd manager for management of the livestock and maintenance of range improvements.

Alternatives Considered but Eliminated from Detailed Study

One additional alternative was considered during the planning process, but has not been included in the EA for detailed study. The alternative is described briefly in the appendix along with the reasons for not considering it further.

This alternative is the same as Alternative 2 with the exception of using the following standards and guidelines: (responds to specific request from the Utah Environmental Congress (UEC) and the Grand Canyon Trust (GCT) received during scoping)

1. Sustainable forage utilization

- a. Grass and forbs: At least half of the year's grass and forb biomass production palatable to livestock in each vegetation type will be retained at the end of the grazing season by the plants; 25% allocated to all wildlife and 25% will have been available for sheep. Response: Moderate use is considered to be proper use, Forest wide proper use criteria states that 26-45% utilization is moderate use. The Forest's proper use criterion is below UEC and GCT recommendation. Forest Service does not allocate forage by species, when proper use is met livestock are removed.
 - i. Within 30 acres per goshawk nest, 400 acres for fledging, and 5,400 acres for home range, combined wildlife and livestock utilization of grass and forb production will average 20% and not exceed 40%; on average 80% and not less than 60% will have been retained by the grasses and forbs. Response: Response: The Forest follows Goshawk amendment.
 - ii. Within tall forb communities at 50% or more NRCS soil potential for native forbs and grasses, sheep can visit once a season (e.g., with one or two sheep monitored with satellite radio collars to show location). If a "once-over" grazing is not verifiable, the tall forb communities should be avoided by sheep. Response: The Permittee is to follow the allotments Annual Operating Instructions. Little Pete's Hole allotment, based on the proposed action is a six pasture deferred rotation system. Deferred rotation systems are proven systems. They allow plants to mature and set seed prior to grazing. Grazing prepares the seed bed and sets the seed mimicking seed harvest and planting.
 - iii. Within grasslands/shrublands deemed to be in "unsatisfactory condition," combined wildlife and livestock utilization of grasses and forbs will not exceed 40%; and percentage of browsed stem tips of shrubs will not exceed 20% (see 1(b) below). Response: Unsatisfactory range utilization standards can be modified by an interdisciplinary team through administrative action. \leq 40 percent utilization of herbaceous biomass and \leq 20 percent browsed stem tips may not be conservative enough and that area may need to be closed to grazing. This is an administrative decision not a blanket standard.
- b. Willow/aspens/cottonwood: Seventy percent of the current year's leaders

will remain unbrowsed at the end of the grazing season. Response: Forest wide proper use criteria states that 26-45% utilization is moderate use. Moderate use is considered to be proper use, Forest Plan 1986.

- c. Sheep numbers are limited to 25% utilization during drought, based on the average of all below-normal precipitation for the Wasatch Plateau during the past 50 years. Forage utilization by livestock during each grazing season must remain at 25% of the current year's forage production, regardless of the year's permitted Animal Unit Months (AUMs), necessitating early removal during years of significant drought. Response: When a Forest wide proper use criterion is met the livestock are removed from the allotment. This takes into account variation in herbaceous biomass production associated with drought.

2. Suitable rangeland (i.e., grass and shrub lands considered in the calculation of forage utilization and capacity for AUMs) includes: Response: Capable and suitable rangelands are based on Region 2 Protocol for Rangeland Capability and Suitability for Forest Plan Revisions with modifications to better address local need. Using these guidelines will require amendment of the existing Forest Plan.

- a. Sites currently producing:
 - i. the pounds of forage/acre on an air dry basis sufficient to provide for sheep and estimated deer, elk, rodents, and other wildlife forage requirements at 50% utilization AND
 - ii. grass and forb biomass at 50% and ground cover at 85% of NRCS soil potential, even if over the minimum sheep-wildlife forage/acre OR.
 - iii. 50% grass and forb biomass and 85% of the ground cover of an ecologically appropriate reference area, ungrazed by livestock for at least ten years and dominated by native species.
- b. Burned sites only after recovery to:
 - i. at least the sheep-wildlife forage/acre AND
 - ii. 50% of NRCS grass and forb biomass and 85% ground cover potential; OR
 - iii. 50% grass and forb biomass and 85% of the ground cover of an ecologically appropriate reference area, ungrazed by livestock for at least ten years and dominated by native species. Response: The Regional soil quality guidelines suggest that each Forest establish local minimum effective ground cover guidelines to assure that detrimental erosion will not occur. Fifty percent is assumed to be the minimum effective ground cover for all of the vegetation types in this analysis. Note that desired ground cover is greater than 50% for most vegetation types. The Forest Plan sets a maximum allowable soil disturbance varying by slope. The Regional soil quality guidelines suggest an upper limit for detrimental soil disturbance of 15% in an activity area. Tom's Ridge Exclosure is on the allotment and comparisons have been made in relation to grazed and ungrazed adjacent long term trend studies.
- c. Meadows (dry and wet) if soil bulk density is no more than 10% higher at end of grazing season compared to a reference meadow ungrazed by

livestock for at least ten years. Response: Presently we are under direction of the 1986 Forest Plan direction and we do not have soil bulk density data.

d. Aspen stands if:

i. young stems are growing above elk/deer/sheep browse height

AND Response: Forest Plan 1986 minimum stocking 1000 trees/acre, six feet tall.

ii. 50% of native grass and forb biomass and 85% of ground cover NRCS soil potential;

iii. OR if they contain 50% native grass and forb biomass and 85% ground cover of an ecologically appropriate reference aspen stand, ungrazed by livestock for at least ten years and dominated by native understory species. Response: Fifty percent is assumed to be the minimum effective ground cover for all of the vegetation types in this analysis. Note that desired ground cover is greater than 50% for most vegetation types.

e. Known and potential habitat of Threatened, Endangered, and Sensitive plant and animal species if evidence indicates sheep grazing will not directly (by consumption or trampling) or indirectly (by facilitation of invasive species, consumption of plants critical to the sensitive species' pollinator(s), consumption of or trampling of vegetation important to the survival of the sensitive species' prey) contribute to retardation of the sensitive species' reproduction and potential spread. Response: The Forest follows the TES Plant Survey Protocol, used to document the actual search or survey process of TE&S plants. The protocol includes methods to record and track site information for each TES plant occurrence, such as site description (extent), plant community, associated species, soil characteristics, disturbance or threats.

3. Unsuitable rangeland (i.e., grass and shrub lands not considered in the calculation of forage utilization and capacity for AUMs) includes: Response: Capable and suitable rangelands are based on Region 2 Protocol.

a. Riparian areas (i.e., unless contradicted by on-site information, 300 feet on each side of perennial streams and 150 feet surrounding all other riparian areas (semi-perennial streams, springs, seeps, and wetlands) except in appropriately located and designated sites that will have minimal negative effects on vegetation and aquatic resources and are spaced appropriately as crossings essential for access to water or movement of sheep to upland forage.

b. Reference areas selected for providing information on the native species (including wildlife) composition and production potential of livestock-free areas, collectively representative of all major vegetation types in the sheep allotments.

c. Sites containing any of the five exotic invasive plant species considered most threatening to the Wasatch Plateau.

d. Municipal watersheds that supply culinary or household water

e. Sensitive archaeological sites, unless evidence indicates livestock grazing would not be likely to adversely impact the site

4. Monitoring

a. The following will be monitored annually:

- i. Grass and forb remaining vegetation (compared with caged grass/forb production on the allotment), % browsed leaders on aspen and willow; height of aspen sprouts at end of grazing season, in all major vegetation types on the allotment.
 - ii. Forage production on burned sites until sufficient wildlife/sheep forage/acre and grass and forb biomass at 50% of NRCS soil potential have been attained; aspen has attained suitable conditions for grazing (see 2(d) above)
 - iii. Absence of livestock impacts on riparian areas except at designated crossings
 - iv. Presence of the five exotic invasive plant species considered most threatening to the Wasatch Plateau.
 - b. The following will be monitored at least once every three years:
 - i. Current forage forb/grass/shrub/aspen production in each reference area
 - ii. Threatened, endangered, and sensitive plant and animal habitat condition.
 - c. The Manti-La Sal NF will provide a response letter to scientists and citizens who submit independent monitoring, indicating how the information has been or will be used by the Forest. If the Forest does not feel the monitoring qualifies as objective or accurate, the Forest will explain this to those who have submitted the monitoring data. Acceptable monitoring will be placed in the appropriate allotment file(s).

5. Introduction of beaver on the allotment. Introduction of beaver on the allotment is outside the scope of the project.

Response: If an indicator is determined not to be meeting desired conditions through monitoring; a change in indicator would result. Inclusion of appropriate monitoring procedures for determination of compliance with Forest Plan Standards and Guidelines is included in

Factors common to all alternatives. Forest Service Handbook 2209.13 describes appropriate monitoring procedures.

Species Diversity photos

Photos Taken in the Head of Pete's Hole Allotment July 16, 2008



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All of the plant species expected to be in the analysis area is represented in the area but there tends to be a poor distribution of forb species. This is thought to have resulted from abusive grazing around the turn of the 20th century. Trend studies indicate a slow increase in the number of grass and forb species over the past 30 years. Species present: Geranium, Castilleja, Artemisa, Taraxacum, Potentilla, Vicia, Frasaria, Melica, Stipa, Viguiera, Lilium, Delphinium, Achillea, Carex, Seniceo, Ligusticum, Agropyron, Orthocarpus, Gilia, Stellaria, Sambucus, Thalictum, Symphoricarpos, Penstemon, Aquilegia, Erigonum, Rumex, Lomatium, Antennaria, Agoseris, Madia, Polemonium, Physaria, Lupinus, Ribes, Chrysothamnus, Phleum, and Poa