

**ENVIRONMENTAL ASSESSMENT
VEACH / GILLESPIE / GRANT CREEK
ALLOTMENT MANAGEMENT PLANS**

Safford Ranger District

USDA Forest Service

Graham County, Arizona

December 11, 2000

FOREWORD

The Council on Environmental Quality regulations (40 CFR Parts 1500 to 1508) outline the procedures the Forest Service uses to comply with the National Environmental Policy Act, commonly referred to as NEPA. These regulations define an environmental assessment as a "concise public document" that "shall include brief discussions" of the need for the proposal, alternatives to the proposal, discussion of environmental effects based on the substantive issues, and a listing of agencies and persons consulted (40 CFR 1508.9). In order to meet the intent of the regulations with respect to "concise" and "brief", the text of this environmental assessment will contain references to the contents of the analysis record whenever possible. References to analysis record documents will be contained in parenthesis following the conclusions abstracted from a particular document. For example, a reference "(Doc. 23, page 6)" would mean that a specific passage in the environmental assessment is linked to analysis record Document 23, page 6. A complete index to the analysis record contents is contained in the environmental assessment as Appendix A.

The Code of Federal Regulations (CFR) contains guidance concerning public review of environmental assessments. This guidance can be found at 36 CFR Part 215. The regulations prescribe a 30-day comment period for public review of this document (36 CFR 215.6(a)). The 30-day comment period begins on the first day after publication of a notice of environmental assessment availability in the appropriate newspaper. The District Ranger must consider all comments received by the close of business on the 30th day of the comment period (36 CFR 215.6(c)(2)). The District Ranger's response will be added to the appendix of the environmental assessment. A copy of the written response will be forwarded to all those who comment on the environmental assessment, with a copy of the final decision notice.

When the final project decision is made, the 36 CFR 215 regulations also provide an administrative appeal process to further review agency decisions. The final decision notice mailed to persons who have expressed an interest in this project will contain information on filing an appeal. Decisions made at the Coronado National Forest level will be reviewed by the Regional Forester of the Forest Service Southwestern Region, in Albuquerque, New Mexico (36 CFR 215.12). Unless waived in a specific case, it is the position of the Department of Agriculture that any filing for Federal judicial review of a decision subject to review under the 36 CFR 215 regulations is premature and inappropriate unless the plaintiff has first sought to invoke and exhaust the procedures available under these regulations (36 CFR 215.20). When NEPA is completed relative to issuance of permits (e.g., special use, grazing, etc.), permittees may choose to appeal under the regulations listed at 36 CFR 251, Subpart C. Permittees must select which administrative review regulation they will opt to use, because they cannot use both for the same appealed decision.

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USDA FOREST SERVICE
SAFFORD RANGER DISTRICT

SECTION 1 PROJECT SCOPE

A. Introduction & Background

This environmental assessment describes a Forest Service proposal to authorize grazing on, issue grazing permits for, and develop allotment management plans (AMPs) for the Veach, Gillespie and Grant Creek Allotments. All three allotments are located within the Pinaleno Ecosystem Management Area, Safford Ranger District, Coronado National Forest (Map 1). The purpose of this report is to describe the proposal and alternatives to the proposal, solicit comments on the proposal and alternatives, and disclose the effects of implementation of the proposal and alternatives. Final decisions on all three allotments are expected by February 2001. Federal actions such as authorization of grazing, issuance of term grazing permits and approval of allotment management plans must be analyzed to determine potential environmental consequences (National Environmental Policy Act of 1969).

B. Purpose and Need for Action

The purpose of the proposed action is to authorize livestock grazing on the Veach, Gillespie and Grant Creek Allotments for a 10-year period, and provide long-term management direction through Allotment Management Plans (AMPs) for each allotment. Authorization is needed now for a variety of reasons. Generically, these include:

- Where consistent with other multiple-use goals and objectives there is Congressional intent to allow grazing on suitable lands (Multiple-Use Sustained Yield Act of 1960, Wilderness Act of 1964, Forest and Rangeland Renewable Resource Planning Act of 1974, Federal Land Policy and Management Act of 1976, National Forest Management Act of 1976).
- It is Forest Service policy to make forage available to qualified livestock operators from lands suitable for grazing consistent with land management plans (Forest Service Manual 2203.1).
- It is Forest Service policy to continue contributions 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).
- By regulation, forage-producing lands will be managed for livestock grazing where consistent with land management plans (36 CFR 222.2(c)).

Vegetation on the Veach Allotment consists of Southwestern desert grassland (38% of the allotment area), broadleaf woodland (49%), transitional coniferous forest (12%), with deciduous riparian, and coniferous forest (less than 1% each; Map 3a). A 1985 fire opened the range and improved grass cover on about 1,100 acres. Prickly pear cactus and catclaw are a problem on about 1,500 acres of the allotment, which would benefit from prescribed fire (Doc. 17). Rangeland condition is summarized in Table 3a and displayed in Map 4a.

Improvements on the Veach Allotment consist of 15.4 miles of fence (including 7 miles of boundary fence), 1 corral, and 11 water developments (stock ponds, springs, tanks, etc.; Doc. 5 and Map 5). The metal water storage tank at Dripping Springs is rusting and in need of replacement (Doc. 17). There is an opportunity to improve distribution of cattle by adding a pipeline from the storage tank to a trough approximately $\frac{3}{4}$ of a mile to the northeast. No other construction or reconstruction of improvements is necessary.

The allotment is accessible to the public from the Swift Trail (AZ Highway 366) and Forest Development Road 119. Hunting and hiking are the main recreational activities in the area.

Gillespie Allotment: Located south of the Veach Allotment in the Stockton Pass area of the Pinaleno Mountains (Map 1), the Gillespie Allotment consists of 8,234 acres, of which 5,662 are considered capable for grazing. Areas classified as "not capable" consist primarily of steep slopes in the upper elevations of the allotment (Map 2a). Elevations range from 3,600 feet, at the Forest boundary, to 8,000 feet on Maverick Mountain. The mean annual precipitation is approximately 12 to 25 inches per year, depending on elevation. Documents 33 and 34 provide climate summaries for the nearby communities of Safford and Fort Grant.

The current grazing permit will expire in 2002 (Doc. 4). There are nine pastures: Gillespie Mountain, Righthand, Mountain Trap, Windmill, Cienega, North, East, Rincon and South (Map 2a). Forty-seven cattle are rotated through seven pastures between March 1 and October 31, in a short-duration grazing system. Cattle are moved as forage utilization limits are reached. Between November 1 and February 28, the cattle are divided between the remaining two pastures. Total yearlong use of the allotment equals 564 cow/calf animal months. Annual operating instructions limit utilization of forage species in key areas to 45% in upland vegetation and 40% in riparian vegetation (Doc. 32). Utilization in key areas was measured in 1998-1999 and appeared to be within these limits (up to approximately 30% utilization; Docs. 6, 15 & 23 & 30).

Vegetation on the Gillespie Allotment consists of Southwestern desert grassland (65% of allotment), broadleaf woodland (34%) and transitional coniferous forest (about 1%; Map 3a). Historic grazing in Stockton Pass, which was a major cattle drive route in the 1900s, led to loss of the "A" soil horizon in portions of the allotment and helped increase shrubby species such as catclaw, prickly pear and mesquite (Doc. 44). In addition, portions of the allotment were seeded with Lehmann lovegrass in the past and some areas have since seen an increase of this species. The Cienega Pasture contains a 1-2 acre cienega that was heavily used in the past (Docs. 39, 42, 43 & 44). Tamarisk and pentzia occur in Stockton Wash (Doc. 17). Rangeland condition is summarized in Table 4a and displayed in Map 4a.

Improvements on the Gillespie Allotment consist of 19.2 miles of fence, 2 corrals, 15 water developments (wells, stock ponds, springs, tanks, etc.), and about 1 mile of pipeline (Doc. 4 and Map 5).

- The Veach, Gillespie and Grant Creek Allotments contain lands suitable for domestic livestock grazing in the Coronado Forest Plan and continued domestic livestock grazing is consistent with the goals, objectives, standards and guidelines of the Forest Plan (Forest Plan pages 9-11, 27-86).

Authorization for a 10-year period is required by law (Federal Land Policy and Management Act Sec. 402.a & b.3).

In addition, there are specific conditions on the Veach, Gillespie and Grant Creek Allotments that require authorization, including:

- Changed resource conditions (Biological Opinions regarding threatened and endangered species [all allotments])
- Changes in classes of permitted animals to reflect actual use (Veach Allotment)
- Changes in season of use to reflect actual use (Veach Allotment)
- Large areas "not capable" for grazing that are included within allotment boundaries (all allotments)
- Need to reconstruct and add improvements (Veach Allotment).

This Environmental Assessment (EA) analyzes the effects of proposed grazing authorization and management practices to be included in AMPs, as well as alternatives to the proposal. The EA describes the existing and desired conditions of the affected environment within the allotments, and proposed management practices that will resolve discrepancies between the two. Management practices that are approved will be incorporated into an AMP for each allotment. Current knowledge regarding existing and desired conditions, and potential management practices, is described in the following sections:

Note: Acreage figures reported here have been revised since the Scoping Report of April 20, 1999, based on Geographic Information System data that were not available at the time of scoping.

Existing Condition:

Veach Allotment: Located on the eastern side of the Pinaleno Mountains (Map 1), the Veach Allotment contains 13,271 acres, of which 6,671 are capable for grazing. Areas classified as "not capable" consist primarily of steep slopes in the upper elevations of the allotment (Map 2a). Topography is gentle near the Forest boundary, becoming very steep in the upper elevations. Elevations range from 3,600 feet, at Forest boundary, to 8,780 feet on Ladybug Peak. The mean annual precipitation is approximately 12 to 25 inches per year, depending on elevation. Documents 33 and 34 provide climate summaries for the nearby communities of Safford and Fort Grant.

The current grazing permit will expire in 2002 (Doc. 5). There is one pasture on the allotment. The current permit allows grazing of 275 cow/calf pairs in the pasture for a six-month period (1650 cow/calf animal months; November 1 to April 30). However, for the past five years the allotment has been grazed for only five months per year (December 1 to April 30), by 275 yearlings (1375 yearling animal months; December 1 to April 30). Annual operating instructions limit forage utilization in key areas to 50% of forage species in upland vegetation and 40% of forage species in riparian vegetation (Doc. 31). Utilization was examined in 1998 and 1999 (Docs. 13, 14 & 16), and is within established limits; permitted numbers appear to be in line with capacity (Docs. 14 & 17).

No construction or reconstruction of improvements is necessary (Doc. 17).

The allotment is accessible to the public from the Stockton Pass Road (AZ Highway 266), and Forest Development Road 199, which runs south from the highway. Hunting is the main recreational activity in the area.

Grant Creek Allotment: Located north of Stockton Pass on the west side of the Pinaleno Mountains (Map 1), the Grant Creek Allotment consists of 5,325 acres, of which 2,888 are classified as capable for grazing. Areas classified as "not capable" consist primarily of steep slopes in the upper elevations of the allotment (Map 2a). Elevations range from 4,700 feet, at the Forest boundary, to 9,200 feet near the Soldier Creek Campground. The mean annual precipitation is approximately 16 to 30 inches per year. Documents 33 and 34 provide climate summaries for the nearby communities of Safford and Fort Grant.

The current grazing permit expires in 2002 (Doc. 4). There are three pastures (Upper Grant Creek, Lower Grant Creek and Gold Gulch; Map 2a), grazed by 30 cattle year-long (360 cow/calf animal months) in a deferred rotation grazing system (Doc. 2). Annual operating instructions limit utilization of forage species in key areas to 45% in upland vegetation and 40% in riparian vegetation. Utilization was measured in 1999 and appears to be within these limits (up to 40% utilization; Doc. 18).

Vegetation on the Grant Creek Allotment consists of deciduous riparian (5% of allotment), coniferous riparian (2%), desert grassland (21%), broadleaf evergreen woodland (47%), transitional coniferous forest (20%), and mixed coniferous forest (5%; Map 3a). Lower-elevation pastures (Lower Grant Creek, Gold Gulch) are 30% Lehmann's lovegrass. Rangeland condition is summarized in Table 5a&b and displayed in Map 4a.

Improvements on the Grant Creek Allotment consist of 10.5 miles of fence, 1 corral, 1 spring and 2 miles of pipeline (Doc. 4 and Map 5). No construction or reconstruction of improvements is necessary (Doc. 17).

The allotment is accessible to the public from Forest Development Road 157, via the Fort Grant Prison Road (AZ Highway 266). Hunting is the main recreational activity in the area, although recreational trails are present.

Desired Condition:

The desired condition is to have AMPs for all three allotments. The AMPs will be based on the best information available and will support the following objectives:

1. Permittee responsibilities for achieving the AMP objectives are clearly stated.
2. Communication between the permittee and the Forest Service about environmental conditions within the allotment is timely and ongoing.
3. Allotment boundaries reflect areas capable for grazing.
4. Livestock stocking is consistent with capacity.
5. Satisfactory range, soil and riparian conditions are maintained and unsatisfactory or impaired conditions are improved.
6. All improvements needed for grazing management are in good working order.
7. Avoid adverse effects to threatened, endangered or sensitive species, and improve habitat.

8. Annual operating instructions are coordinated with prescribed fire plans.

In addition to the desired conditions for all allotments, there are specific desired conditions for the Veach Allotment:

Veach Allotment: Permitted classes of livestock reflect current use for yearlings.

C. Proposed Action(s)

The Safford Ranger District proposes to issue new 10-year term grazing permits for the Veach, Gillespie and Grant Creek Allotments, and to develop AMPs for each allotment. The following is a description of proposed management practices for the allotments:

Veach Allotment:

- Issue a 10-year term grazing permit for the allotment.
- Adjust administrative boundary to eliminate steep, upper-elevation areas "not capable" for grazing, to more accurately reflect grazing capacity and actual use.
- Maintain existing pastures.
- Adjust permit to reflect current use (from 275 cow/calf pairs grazing between November 1 and April 30, to 275 yearlings grazing between December 1 and April 30; that is, from 1650 cow/calf animal months to 1375 yearling animal months).
- Use annual operating instructions to limit utilization of forage species in designated key areas to 50% in upland vegetation and 40% in riparian vegetation.
- Monitor key areas to assure that forage utilization is within limits.
- Maintain existing range improvements.
- Replace water storage at Dripping Springs and add a pipeline and trough, to maintain proper cattle distribution.
- Use annual operating instructions to coordinate with burn plans, in order to reduce density of prickly pear and catclaw.

Gillespie Allotment:

- Issue a 10-year term grazing permit for the allotment.
- Adjust administrative boundary to eliminate steep, upper-elevation areas "not capable" for grazing, to more accurately reflect grazing capacity and actual use.
- Continue permit for 47 cattle, year-long (equals 564 cow/calf animal months).
- Maintain existing nine pastures and growing season deferred rotation (graze seven pastures between March 1 and October 31; divide cattle between remaining two pastures from November 1 to February 28).
- Use annual operating instructions to limit utilization of forage species in designated key areas to 45% in upland vegetation and 40% in riparian vegetation.
- Monitor key areas to assure that forage utilization is within limits.
- Maintain existing range improvements.

Grant Creek Allotment:

- Issue a 10-year term grazing permit for the allotment.
- Adjust administrative boundary to eliminate steep, upper-elevation areas "not capable" for

grazing, to more accurately reflect grazing capacity and actual use.

- Use annual operating instructions to limit utilization of forage species in designated key areas to 50% in upland vegetation non-growing season use, and 40% upland vegetation growing season use and 40% in riparian vegetation.
- Monitor key areas to assure that forage utilization is within limits.
- Continue permit for 30 cattle, year-long (equals 360 cow/calf animal months).
- Maintain existing range improvements.
- Maintain existing three pastures and deferred rotation system.

D. Decision to be Made

The Safford District Ranger will decide whether or not to authorize grazing on the Veach, Gillespie and Grant Creek Allotments. The District Ranger may decide to select the No Action alternative, defer action, or select an action alternative for each of the allotments. If a decision is made to authorize grazing, the Ranger will also decide which management practices and mitigation measures will be prescribed in the AMPs, including permitted number of animals and season of use, livestock facilities to be constructed, allowable utilization levels, and monitoring actions to be employed.

E. Planning Issues

On January 25 & 26, 1999, a Coronado National Forest interdisciplinary team met with Safford District staff to discuss the three allotments. After discussing the allotments, a proposed action was developed along with needed mitigation measures that will eliminate the potential for significant environmental effects. Public scoping was conducted by means of a Scoping Report mailed to potentially interested parties on April 16, 1999 and requesting a response by May 17, 1999 (Docs. 20, 21 & 22). Based on corrected data and the responses to the Scoping Report, Issue 3 was revised to consider the economic costs and returns of the alternatives, and Issue 4 was added. The revised list of issues includes:

1. Effects to threatened, endangered, proposed or sensitive species or their habitat. Among the species of concern are the lesser long-nosed bat, American peregrine falcon, Mexican spotted owl, and northern goshawk.
2. Effects to wildlife from construction of water trough on the Veach Allotment.
3. Effects to economic viability of permittee operations, and returns to the local economy.
4. Effects of grazing on the potential development of a wetland in the Cienega Pasture within the Gillespie Allotment.

F. Measures (Evaluation Criteria):

1. Threatened, endangered, proposed and Forest Service sensitive species:
Narrative describing effects, by alternative, as identified through a Wildlife Specialist Report, and for the Preferred Alternative, as identified by a Biological Assessment.
Mexican spotted owl: Acres of Protected Activity Centers subjected to grazing.
- 2: Effects to wildlife from replacement of water storage:
New water developments will include wildlife access and escape ramps.
- 3: Range improvement costs and returns on investment:
Economic narrative, including relative costs and returns of alternatives.
4. Effects to air, vegetation, wildlife and heritage resources:
These standard evaluation criteria are discussed in narrative or table form.

5. Effects of grazing to the potential development of a wetland in Cienega Pasture:
Narrative describing effects of grazing on vegetation and soils for all alternatives.

G. Project Location/Analysis Area

The location includes all or part of:

Veatch Allotment:

- T. 9 S., R. 25 E., sections 1-3, 10-16, 10-30, 33-36
- T. 10 S., R. 25 E., sections 1-3

Gillespie Allotment:

- T. 9 S., R. 25 E., sections 29, 32-36
- T. 10 S., R. 25 E., sections 1-4, 10-15, 22, 23
- T. 10 S., R. 26 E., sections 6, 7, 17-20

Grant Creek Allotment:

- T. 8 S., R. 24 E., section 32
- T. 9 S., R. 24 E., sections 4-9, 16-21, 28-30

Past, present and foreseeable future projects that may produce cumulative effects in the area are:

- Historic grazing impacts
- Prescribed fire in Gillespie Allotment
- Treatment of shrubby vegetation in Veatch Allotment
- Treatment of noxious weeds in Gillespie Allotment
- Water diversion in Grant Creek Allotment

The interdisciplinary analysis determined that there was no incremental impact from the proposed action or other alternatives when added to other past, present, or reasonably foreseeable future actions.

H. Further NEPA Analysis Needed

This environmental assessment documents the site-specific project-level analysis that will support the decision to be made (see item D., above). No additional NEPA analysis will be needed to implement this project. This NEPA analysis is tiered to the analysis and documentation completed for the Coronado Land and Resource Management Plan in 1986. While this environmental assessment discloses the environmental effects for issuance of 10-year term permits and preparation of AMPs for three grazing allotments, separate decision notices may be issued for each allotment.

SECTION 2 · ALTERNATIVES

A. Alternative Development

The initial scoping meeting took place on January 25 and 26, 1999 (Doc. 17). At the meeting a preliminary proposed action alternative was developed (Alternative 3). This alternative has been finalized in this EA with internal and external input incorporated from the scoping process. In addition to the proposed action described above (Section 1, Part C), two other alternatives are considered for the allotment; 1) No Grazing/No Action alternative, and 2) Continue Current Management on the allotments. The "No Action/No Grazing" alternative (Alternative 1) discontinues livestock use of the allotment and meets the NEPA requirement for a "No Action" alternative. The Continue Current Management alternative (Alternative 2) includes maintenance of existing structures, but does not provide for adjustment of permitted numbers on the Veatch Allotment.

B. Alternatives Dropped from Detailed Study

No alternatives suggested during initial scoping were dropped from detailed consideration.

C. Alternatives Considered in Detail:

Objectives Common to All Grazing Alternatives:

 In addition to the objectives outlined in the Desired Condition discussion (Section 1, Part B), the following objectives are also common to all grazing alternatives.

Implement Forest Service policy concerning availability of forage on National Forest System lands.
Avoid or reduce adverse effects to threatened, endangered or Forest Service sensitive species.

Alternative Mitigation/Monitoring:

- Water developments - all new or reconstructed water developments will include wildlife access and escape ramps.
- Implement the following Best Management Practices for grazing: Annually prepare an operating plan with the permittees to allow for current allotment conditions; make periodic field checks to identify needed adjustments in season of use and livestock numbers including stock counts, forage utilization, assessment of rangeland to verify soil and vegetative condition and trend; and use necessary techniques to achieve proper distribution, or lessen the impact on areas which are sensitive or which would naturally be overused.
- Key monitoring areas are established in each pasture. Measurement of utilization will be conducted as needed to ascertain when a grazed pasture has reached its utilization objective.
- Design range improvements to avoid impacting agaves. If impacts to agaves are unavoidable, ensure that no more than one percent of the agaves within 800 meters (0.5 miles) of the range improvement are impacted.
- If a *Leptonycteris* roost is found in or within 1 mile of these allotments, the District shall develop a mitigation plan in coordination with the U.S. Fish and Wildlife Service for each range project or road maintenance action undertaken as a part of the grazing program, within 1.6 km (1 mile) of the roost. The purpose of the mitigation plan shall be to minimize the disturbance to the roost(s) from construction and maintenance activities and to ensure that such activities do not

facilitate public access to roosts.

- Contribute data as appropriate to the annual report to the U.S. Fish and Wildlife Service required by term and condition #3 on page 148 of the final Biological Opinion under consultation number AESO/SE 2-21-98-F-399.

Alternative Descriptions:

The following alternatives were approved by the District Ranger to address the substantive issues defined during scoping. The alternatives considered in detail are described below:

Alternative 1: No Action (No Grazing): Under this alternative, use of the grazing allotments by domestic livestock would be discontinued. No term grazing permit would be issued. All existing structural improvements including water developments would remain in place but would not be maintained. Periodic monitoring of structural improvements (at least once every ten years) would be used to determine whether removal or maintenance is needed. Removal or maintenance would be authorized by a separate decision.

Alternative 2: Continue Current Management: The **Veach Allotment** contains 13,271 acres, of which 6,671 are classified as capable for livestock grazing. Areas classified as "not capable" primarily consist of steep slopes in the upper elevations of the allotment. The current grazing permit (Doc. 5) expires in 2002. It allows grazing of 275 cow/calf pairs in one pasture for a six-month period (1650 cow/calf animal months; November 1 to April 30). However, annual operating instructions (Doc. 31) allow the allotment to be grazed for only five months, by 275 yearlings (1375 yearling animal months; December 1 to April 30). Annual operating instructions limit utilization of forage species in key areas to 50% in upland vegetation types and 40% in riparian vegetation types. Improvements on the Veach Allotment consist of 15.4 miles of fence (including 7 miles of boundary fence), 1 corral, and 11 water developments (stock ponds, springs, tanks, etc.). The metal water storage tank at Dripping Springs would be replaced. No other construction or reconstruction of improvements is undertaken.

The **Gillespie Allotment** consists of 8,234 acres, of which 5,662 are considered capable for grazing. Areas classified as "not capable" primarily consist of steep slopes in the upper elevations of the allotment. The current grazing permit (Doc. 4) will expire in 2002. There are nine pastures: Gillespie Mountain, Righthind, Mountain Trap, Windmill, Cienega, North, East, Rincon and South (Map 2a). Forty-seven cattle are rotated through seven pastures between March 1 and October 31 in a short-duration grazing system. Between November 1 and February 28 the cattle are divided between the remaining two pastures (564 cow/calf animal months). Annual operating instructions limit utilization of forage species in key areas to 45% in upland vegetation and 40% in riparian vegetation. Improvements on the Gillespie Allotment consist of 19.2 miles of fence, 2 corrals, 15 water developments (wells, stock ponds, springs, tanks, etc.), and about 1 mile of pipeline. No construction or reconstruction of improvements is undertaken.

The **Grant Creek Allotment** consists of 5,325 acres, of which 2,888 are classified as capable for grazing. Areas classified as "not capable" primarily consist of steep slopes in the upper elevations of the allotment. The current grazing permit (Doc. 4) expires in 2002. There are three pastures: Upper Grant Creek, Lower Grant Creek and Gold Gulch (Map 2a), grazed by 30 cattle year-long in a deferred rotation grazing system (360 cow/calf animal months). Annual operating instructions (Doc. 32) limit forage utilization in key areas to 50% for non-growing season use, 40% in upland vegetation during the

growing season and 40% in riparian vegetation. Improvements on the Grant Creek Allotment consist of 10.5 miles of fence, 1 corral, 1 spring and 2 miles of pipeline. No construction or reconstruction of improvements is undertaken.

Alternative 3. Proposed Action: This alternative is previously described in Section 1, Part C. of this document. The following table is included to facilitate comparisons of the alternatives using selected descriptive parameters.

TABLE 1 - SELECTED DESCRIPTIVE ALLOTMENT CHARACTERISTICS BY ALTERNATIVE.

Descriptive Parameter	Allotment	No Action/No Grazing (Alt. 1)	Continue Current Management (Alt. 2)	Proposed Action/Preferred Alternative (Alt. 3)
Season of Use	Veatch	None	11/01-04/30	12/01-04/30
	Gillespie	None	03/01-02/28	03/01-02/28
	Grant Creek	None	03/01-02/28	03/01-02/28
Utilization (Growing Season)	Veatch	0%	0%	0%
	Gillespie	0%	45/40%*	45/40%*
	Grant Creek	0%	40/40%*	40/40%*
Utilization (Non-Growing Season)	Veatch	0%	50/40%**	50/40%**
	Gillespie	0%	45/40%*	45/40%*
	Grant Creek	0%	50/40%*	50/40%*
Permitted # (Animal Months)	Veatch	0%	1650 Cow/Calf	1375 Yearlings
	Gillespie	0%	564	564
	Grant Creek	0%	360	360

*Utilization upland/riparian

** Season of use is in the non-growing season. Growing season is defined as July through September, the growth period for native warm season grasses.

Table 2 below provides a comparison of the planned range improvement projects associated with each alternative and for each allotment.

TABLE 2 · PLANNED RANGE IMPROVEMENTS BY ALTERNATIVE FOR EACH ALLOTMENT

Allotment	Improvement Description	No Action/No Grazing (Alt. 1)	Continue Current Management (Alt. 2)	Proposed Action/Preferred Alternative (Alt. 3)
Veach	Replace Dripping Spring water storage	N	Y	Y
	Add Pipeline & Trough to Dripping Spring water storage	N	N	Y
Gillespie	None (Maintain existing improvements)	N	N	N
Grant Creek	None (Maintain existing improvements)	N	N	N

Preferred Alternative Identification

In this Environmental Assessment **the Proposed Action is the agency's Preferred Alternative**. The Proposed Action/Preferred Alternative implements Forest Service policy concerning livestock forage, while minimizing detrimental effects to threatened or endangered species, other wildlife, and the economic viability of permittee operations. New grazing improvements are not constructed in the habitat of threatened, endangered or sensitive species, and wildlife access and escape ramps are provided when maintaining water developments. Economic impacts to permittees are those of current management, and provide economic returns that are not generated if the No Action/No Grazing alternative is selected. Vegetation condition in a former wet bottom in the Cienega Pasture is maintained or improved, with the potential for a later watershed project that will treat erosion that requires structural correction.

SECTION 3 · AFFECTED ENVIRONMENT & ENVIRONMENTAL EFFECTS

A. Introduction

This Section shows the present condition (that is, the affected environment) within the Veach, Gillespie and Grant Creek Allotment areas and the changes that can be expected from implementing the Proposed Action, continuing current management or taking no action at this time. The No Action alternative sets the environmental base line for comparing the effects of the action alternatives.

The planning issues (see Section 1.E) define the scope of environmental concern for these allotments. The environmental effects (changes from present base line condition) described in this section reflect the identified major issues. Tabular data distinguish between acres capable for grazing and acres not capable for grazing, as the latter (primarily slopes too steep for cattle) are not subject to grazing impacts. Issue numbers are shown in parentheses after subheadings, where appropriate to cross-reference issues with the impact discussions that follow.

B. Vegetation (Issue 4)

The following discussion is derived from Document 44:

General:

Grazing by domestic livestock for 10 years may impact vegetation by changing the mix of species in the plant community being grazed (vegetation composition); by changing the density and frequency of perennial forage plants (forage frequency); and by changing the vigor of the grazed plants. These three vegetation effects are combined into four vegetation condition classes that reflect the relative effects of grazing on vegetation. The condition ratings are primarily based on comparisons to an undisturbed plant community (similarity index). In addition, the interpretation draws on the concepts of steady state and site protection. Apparent trend is reported, although trend is difficult to assess in the absence of on-site rain gauges and plant community analysis over consecutive years.

Consideration is also given to processes other than grazing that affect rangeland vegetation condition. In the Pinaleno EMA, foremost among these are climatic effects, primarily seasonal fluctuations in rainfall patterns and drought. In general, cool season moisture will favor the establishment of shrubby vegetation, and summer monsoonal storms will favor the establishment and growth of warm season grasses. Over the 5 years prior to 1999, seasonal rainfall patterns in the project area have been characterized by lower than normal summer precipitation and, except for 1998, higher than normal winter precipitation. The summer rains in 1999 were above normal, and well below normal in 2000.

The presence of non-native species will lower condition ratings. Of special concern is the presence of noxious weeds, those species that threaten native ecosystems. Three of these species have become established within the Pinaleno Ecosystem Management area. Within the Gillespie Allotment (South Pasture), there is a small infestation of Karoo bush (*Penzia incanus*). Eradication efforts for this infestation (grubbing and burning) have been ongoing since 1997. Thatcher High School biology students are accomplishing the work as an Earth Day project each year. Sweet resin bush (*Euryops subcarnosus* subspecies *vulgaris*) was introduced to the area in the 1930s in small test plots. It has since become well established on 10-12 acres within the Marijilda Allotment, which is adjacent to the north of the Veach Allotment. Tamarix is present in the Gillespie Allotment. A Weed Management Group has been formed to control or eradicate the sweet resin bush and the Karoo bush. There are no current proposals to control tamarix.

Another non-native plant, Lehmann lovegrass was seeded for watershed protection purposes in the project area between 1960 and 1990. This plant has become naturalized on many sites. Although the watershed protection goals were achieved, the resulting plant community is different than an undisturbed site. These sites will have a lower condition rating based on a similarity index, however, the sites may be functioning and sustainable, and have improved watershed condition.

The other major process that affects rangeland vegetation condition is fire. A regular regime of fire will favor an open grassland aspect; therefore rangeland vegetation condition ratings are improved because they are biased toward grasses. Fire has not been a regular process in most of the project area over the past 100 years (Baire, 1995). One significant wildfire was referenced in the files. In 1985, the Veach fire burned approximately 1200 acres in areas dominated by mesquite, catclaw and prickly pear. Between 1986 and 1999, there were eight wildfires within the Veach Allotment. Six of these were controlled at 0.1 acres, one was controlled at 0.5 acres, one was controlled at 1.0 acres and one was confined at 1.5 acres. Six of the fires were started by lightning, one started as a campfire, and one was caused by a cigarette. The Grant Creek Allotment had two wildfires within its boundaries during that same time period, one caused by a campfire and one caused by lightning. Both were controlled at 0.1

acres. During the same time period (1986 to 1999) there was one wildfire (1992) within the Gillespie Allotment that burned 1275 acres. In 1993, 800 acres were burned under prescription in the same area. Another prescribed fire in 1998 burned 3600 acres.

Historic livestock grazing in all three of the allotments was heavy, and many areas were reported to be in poor condition in the first half of the century.

Note: Acreage figures and classifications reported here may differ from the Scoping Report of April 20, 1999. This difference is a result of the site-specific analysis at the project level. Classification of acres that are capable for grazing is based only on slope. Slopes of 40% or steeper are classified as "not capable". The slope analysis was accomplished using the Digital Elevation Model with a 19-acre resolution.

Veach Allotment:

Affected Environment, Upland Vegetation: Assessment of the Veach Allotment is based on existing data in the GIS (circa 1997), a watershed analysis conducted in 1998, a Production and Utilization survey in 1998, and range inspection reports from 1994, 1995 and 1999. Historic data (more than ten years old) was also used to help interpret trend. The Veach Allotment currently contains 13,271 acres, of which 6,671 are classified as capable for grazing. The vegetation types found on the allotment are Southwestern desert grassland (38%), broadleaf evergreen woodland (49%) and transitional coniferous forest (12%). Lehmann and Boer lovegrass were seeded in desert grassland area in the past.

Historically, the flatter portions of the allotment were subjected to heavy grazing which resulted in poor range conditions. At the time that the Mt. Graham Forest Reserve was established (1902; the Reserve was an antecedent of the Crook and Coronado National Forests), the Seventy Six Cattle Co. was running cattle on the area. They were issued a permit for 200 cattle yearlong (CYL) for the area that is now the Veach Allotment, but various reports indicated that large herds of cattle and horses, well in excess of permitted numbers, were on the Forest until 1929. Other permits were active in the area, which changed hands several times. The Veach Allotment was fenced in 1939, and a permit issued for 162 CYL. Yearlong use continued until 1951, when an agreement with the permittee changed the use to 250 cattle, 10/1 to 3/31. In 1962 there was a mesquite push on 116 acres, along with seeding of Lehmann and Boer lovegrass in the push area. In 1964, the use was increased to 275 cattle, 11/1 to 4/30, based on new improvements. Management was inconsistent through the 1970s. In 1980 the management situation was reported to be poor. By 1982 the situation was much improved.

Recent management has been good, especially since 1990. Reports filed in 1994, 1995, 1998 and 1999 all indicate that management is acceptable and that conditions appear to be improving. Poor range conditions still exist in areas along the Forest boundary. These areas are dominated by burroweed, prickly pear, mesquite, and catclaw. The degraded condition is an artifact of historic overuse, and the soils now appear to have stabilized. The vegetation community, however, is not expected to change dramatically without some type of treatment. Higher elevation slopes (5-40%) are reported to be in fair to good condition.

The current permit for is for 275 cattle, cow/calf, from 11/1 to 4/30. However, actual use since 1993 has been 275 yearlings from 12/1 to 4/30. Utilization is limited to 50% in grasslands and woodlands and, and 40% in riparian areas. Utilization measured in key areas in 1998 and 1999 was around 20% or less.

Below, the existing vegetation condition and trend, and also the predicted condition and trend for the proposed action and alternatives at the end of the permit period for the Veach Allotment are displayed. The predictions are made with the assumption that grazing is the only factor affecting rangeland vegetation condition. Table 3a displays percentage of acres capable for grazing, Table 3b applies to acres not capable for grazing. A short discussion follows.

Note: Only the condition within the proposed boundary is displayed in the following tables. This is the area that has been and will be affected by management activities.

TABLE 3a: EXISTING AND PROJECTED UPLAND RANGELAND VEGETATION CONDITION AND TREND, VEACH ALLOTMENT, PERCENTAGE OF ACRES CAPABLE FOR GRAZING

Condition Class: Percent of Allotment	Exist. Condition	No Action/No Grazing (Alternative 1)	Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
HIGH	0	0	0	0
MODERATELY HIGH				
<i>Upward Trend</i>		10	6	7
<i>Static Trend</i>	77	77	77	77
MODERATELY LOW				
<i>Upward Trend</i>	21	12	16	15
<i>Downward Trend</i>	1	1	1	1
LOW				
<i>Upward Trend</i>	1			

TABLE 3b: EXISTING AND PROJECTED UPLAND RANGELAND VEGETATION CONDITION AND TREND, VEACH ALLOTMENT, PERCENTAGE OF ACRES NOT CAPABLE FOR GRAZING

Condition Class: Percent of Allotment	Exist. Condition	No Action/No Grazing (Alternative 1)	Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
HIGH	0	0	0	0
MODERATELY HIGH				
<i>Static Trend</i>	95	95	95	95
MODERATELY LOW				
<i>Downward Trend</i>	5	5	5	5
LOW	0	0	0	0

Grazing Effects, Upland Vegetation, Veach Allotment: Currently, capable acres in the desert grassland vegetation type with slopes of less than 5% are classified in low ("poor") condition. These areas were historically overgrazed. The rating reflects low production of perennial grasses and a high percentage of undesirable shrubs in the vegetation community. Capable acres in the desert grassland at slopes of 5-15% are rated in moderately low ("fair") condition. All of the capable grassland acres are in an upward trend, based on improvement over the last 20 years. The broadleaf woodland areas are rated in moderately high ("good") condition with a static trend. The coniferous woodland areas are rated in moderately low condition ("fair") with a downward trend. This vegetation type is mostly in areas that are not capable for grazing, the downward trend can be reversed by periodic burning. Because of the presence of shrubby species, it is unlikely that high ("excellent") condition will be achieved in any of the areas within the planning period. Significant reductions of the shrub component will not occur with the moderate levels of grazing proposed, or even with removal of grazing livestock. These species can only be reduced using more intensive management than is proposed here, i.e. prescribed fire or herbicides.

The No Action/No Grazing Alternative (Alternative 1) will have no effects from livestock grazing. The current permit (Alternative 2) allows winter only grazing by 275 cow/calf from 11/1 to 4/30, with a utilization rate of 50% on key forage species in designated key areas. Winter only grazing is a good strategy for native warm season grasses since they will only be grazed in the dormant season. There will be no new improvements under Alternative 2. Actual use since 1993 has been by 275 yearlings for a shorter season, 12/1 to 4/30. This is the management proposed under Alternative 3. Alternative 3 (Proposed Action/Preferred Alternative) would also change the boundary of the allotment, replace a water tank at Dripping Springs, and add a pipeline and trough from the new tank to area approximately ¾ of a mile away, thus improve distribution. The proposed boundary change will reduce the number of capable acres within the allotment from 6,672 to 6,528, and the not-capable acres from 6,600 to 4,992. The proposed boundary change will not lead to a difference in grazing effects between Alternative 2 and Alternative 3. However, the shorter grazing season and the improvement of the Dripping Springs water source will allow vegetation conditions to improve faster under Alternative 3 than for Alternative 2. Effects of grazing will be most obvious in concentration areas, around water sources and cattle bed grounds.

In terms of cumulative effects related to planned and past projects in the area, improvement will be more dramatic than depicted in Tables 3a and 3b if the use of prescribed fire continues. Lehmann lovegrass is naturalized in many areas. Grazing as proposed under Alternatives 2 and 3 will not affect the further establishment or reduction of this species within the allotment. Use of fire (prescribed or wild) in the desert grassland vegetation type may increase the area occupied by Lehmann lovegrass. Grazing as proposed under Alternatives 2 and 3 will not interfere with the treatment of noxious weeds within the allotment. Although there are no current plans for prescribed burning or noxious weed treatment within the Veach Allotment, there is a high likelihood that projects of that type will be proposed within the proposed permit period. There are several trails and a few miles of road within the allotment. Cattle use on these roads and trails under Alternatives 2 and 3 will not lead to adverse cumulative effects. Historic grazing impacts are evident, however conditions are improving and are projected to continue to improve under all alternatives.

Gillespie Allotment:

Affected Environment, Upland Vegetation: This assessment of the Gillespie Allotment is primarily based on existing data in the GIS (circa 1997), watershed surveys in 1998, and unit inspection reports in

1998 and 1999. Historic data (more than ten years old) was also used to help interpret trend. The Gillespie Allotment currently contains 8,234 acres of which 5,662 are classified as capable for grazing (reported in Scoping Report as 5,970 capable acres, revised as part of this analysis). The vegetation types found on the allotment are Southwestern desert grassland (67%), broadleaf woodland (32%) and transitional coniferous forest (0.6%). Karoo bush and tamarix are two invasive non-native plants that occur within the allotment. Lehmann lovegrass was seeded in desert grassland areas in the past. Sudan grass was inadvertently seeded (from seeds in mulch) during treatment for removal of Karoo bush, and some plants were established. This plant is not known to be invasive.

Prior to 1942, The Gillespie Allotment was part of a large grazing permit which included what is now the Gillespie, Veatch, Stockton Pass, O Bar O, O Bar O Canyon, Seventy-Six, Bonita, Cedar Spring, Two Troughs, and part of the Shingle Mill Allotments. In 1942 the permit for the Gillespie was waived to a new permittee with a stocking rate of 68 cattle yearlong. In 1963, a vegetation and watershed improvement project called the Gillespie Mesquite Eradication Project was completed. The objectives of the project were to reduce surface erosion, reduce sediment load, and increase forage on 210 acres. The project was accomplished by pushing mesquite with a D-8 Caterpillar, then seeding the area with Lehmann lovegrass. In 1968 a new permit was issued for 54 cattle yearlong. At that time the allotment was considered to be in poor condition. The permit was waived again in 1971, for 54 cattle and 2 horses yearlong. An evaluation of the mesquite eradication project in 1975 found that the project had been successful. Lehmann lovegrass cover was established (native grass cover also increased) and consequently surface erosion was reduced. Few signs of the pushed mesquite were apparent 12 years after project completion.

In 1978, a three-pasture rest-rotation grazing system was implemented. In 1980, this system was adjusted to allow more growing season deferment. More pasture fences were built resulting in 9 pastures. Conditions improved somewhat under this management, however, because of a change in the permittee's base of operation, the expected improvement in range condition was not realized. In 1987, management was changed to a six month, high intensity grazing system. Under this system, 130 cattle were permitted on the forest for six months, (10/15 - 4/15), and rotated through the nine pastures. In 1988 the permit was issued to a new permittee and the use changed to 47 cattle yearlong. An Allotment Management Plan was prepared that combined the management of the Gillespie Allotment with the Grant Creek Allotment. This plan included a number of new improvements, as well as plans for prescribed burns in both allotments. The plan was partially successful, and the burn on Gillespie was accomplished. In 1994, management again changed, this time to 47 cattle, yearlong, in a deferred rest-rotation system. A second prescribed burn occurred in 1998. Unit examination records from 1998 and 1999 report the allotment to be in generally good condition with an upward trend.

The current management system has been in place since 1994. The permit is for 47 cattle, cow/calf, yearlong. Cattle graze in the Righthand and Mountain Trap pastures each winter from 11/1 to 2/28. Cattle are rotated through the remaining seven pastures from March 1 to October 31, with use in each pasture varying from zero to three months. This management plan provides the flexibility to schedule growing season rest in most pastures in most years. The schedule for each year is set through Annual Operating Instructions. Utilization rates are 45% in the grassland and woodlands, and 40% in riparian areas. Actual use measured in key areas in 1999 was 31% and below. Stocking was at full permitted numbers.

One of the issues brought forward in the scoping process for the AMP was the possibility that the Cienega Pasture would develop into a true cienega if it were further protected from grazing. There is evidence that this site was once wetter than it is now. There are old willow trees and a small area (approximately 2 acres) of clay-rich soil. There is an old gully system, indicating that downcutting occurred in the past. The gully is still active, although vegetation is growing in the channel and a recent intensive precipitation event caused only minimal movement of soil. There are some old gully plugs which were probably installed by the Civilian Conservation Corps in the 1930s. Several appear to be associated with the road, and another is associated with the aforementioned gully system.

Recreating the presumed past condition as a wetland or cienega site would involve raising the water table, initially through construction of erosion-control structures. There are no current proposals for projects that would accomplish this. Methods for enhancing the vegetation of the Cienega Pasture include fencing areas within the pasture, winter only grazing, or excluding the pasture from grazing altogether. Assessment of the site revealed that current grazing management is not limiting the development of riparian or upland species in the pasture, or causing accelerated erosion in the gully system. The pasture is important to the overall management of the allotment. It is one of seven pastures that are used from March 1 to October 31, with use in each pasture varying from zero to three months in duration. Growing season (July through September) rest is possible in the Cienega Pasture under this scheme at least every other year and likely more often. Thus, exclusion of cattle would not appreciably enhance the vegetation of the area, and could increase grazing pressure on vegetation elsewhere in the allotment.

Below, the existing vegetation condition and trend, and also the predicted condition and trend for the proposed action and alternatives at the end of the permit period for the Gillespie Allotment are displayed. The predictions are made with the assumption that grazing is the only factor affecting rangeland vegetation condition. Table 4a displays percentage of acres capable for grazing, Table 4b applies to acres not capable for grazing. A short discussion follows.

Note: Only the condition within the proposed boundary is displayed in the following tables. This is the area that has been and will be affected by management activities.

TABLE 4a: EXISTING AND PROJECTED UPLAND RANGELAND VEGETATION CONDITION AND TREND, GILLESPIE ALLOTMENT, PERCENTAGE OF ACRES CAPABLE FOR GRAZING

Condition Class: Percent of Allotment	Exist. Condition	No Action/No Grazing (Alternative 1)	Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
HIGH	0	0	0	0
MODERATELY HIGH				
<i>Upward Trend</i>	52	62	60	60
<i>Static Trend</i>	16	16	16	16
MODERATELY LOW				
<i>Upward Trend</i>	32	22	24	24
LOW	0	0	0	0

TABLE 4b: EXISTING AND PROJECTED UPLAND RANGELAND VEGETATION CONDITION AND TREND, GILLESPIE ALLOTMENT, PERCENTAGE OF ACRES NOT CAPABLE FOR GRAZING

Condition Class: Percent of Allotment	Exist. Condition	No Action/No Grazing (Alternative 1)	Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
HIGH	0	0	0	0
MODERATELY HIGH				
<i>Upward Trend</i>	41	41	41	41
<i>Static Trend</i>	59	59	59	59
MODERATELY LOW	0	0	0	0
LOW	0	0	0	0

Grazing Effects, Upland Vegetation: The Gillespie Allotment is in moderately high condition with an upward trend in the desert grassland south of Stockton Pass Wash and north of Highway 266. These areas have had successful prescribed burning in the past 10 years. Appropriate post-fire grazing management has been implemented and the improvement is expected to continue. In flatter areas, Lehmann lovegrass is well established, lowering the similarity index (moderately low). However, the sites are stable and well protected with significant amounts of plant biomass and litter contributed by the lovegrass. The Cienega Pasture is rated in moderately high condition. Many native perennial grasses are well represented, and plant vigor is high.

Desert grassland vegetation south of the Highway 266 (with the exception of Cienega Pasture) is in moderately low condition with an upward trend. These areas have stabilized since historic overgrazing, and are slowly improving under current management. The moderately low rating in the grassland reflects a high percentage of Lehmann lovegrass and undesirable shrubs in the plant community. North of Stockton Pass Wash, the desert grassland is also in moderately low condition. These areas have not been treated with prescribed fire, and would improve in condition if they were burned, although burning may increase the extent of Lehmann lovegrass.

The oak woodland vegetation communities are in moderately high condition with a static trend. This area is minimally affected by grazing, and the vegetation community appears to be stable in the absence of periodic fire. The trend for the capable acres in the grassland is upward based on considerable improvement over the last 20 years, and especially in the areas that have been burned. The trend for the not capable acres is classified as static.

The No Action/No Grazing Alternative (Alternative 1) will have no effects from grazing. Conditions in the lower elevation grassland will continue to improve. Woodland sites that have been impacted by grazing will also continue to improve. However, woodland sites are probably at or near a steady state and will not change much in the absence of fire. Because the condition of the rangeland vegetation under current management is improving, this improvement is expected to continue with Alternatives 2 and 3, although probably at a slower rate than with Alternative 1. Alternative 3 proposes a change in boundary

that results in a reduction of not-capable acres, from 2705 to 1698. There will be no difference in effects from grazing between Alternatives 2 and 3.

In terms of cumulative effects related to planned and past projects in the area, improvement will be more dramatic than depicted in Tables 4a and 4b if the use of prescribed fire continues. Lehmann lovegrass is naturalized in many areas. Grazing as proposed under Alternatives 2 and 3 will not affect the further establishment or reduction of this species within the allotment. Use of fire (prescribed or wild) in the desert grassland vegetation type may increase the area occupied by Lehmann lovegrass. Grazing as proposed under Alternatives 2 and 3 will not interfere with the treatment of noxious weeds within the allotment. Although there are a few roads within the allotment, use of these roads by cattle is not a significant source of road degradation. Historic overgrazing impacts are evident, but conditions are improving and are projected to continue to improve under all alternatives.

Grant Creek Allotment:

Affected Environment, Upland Vegetation: Assessment of the Grant Creek Allotment is primarily based on existing data in the GIS (circa 1997), watershed surveys in 1998, and unit inspection reports in 1997 and 1999. Historic data (more than ten years old) was also used to help interpret trend. The Grant Creek Allotment contains 5325 acres of which 2888 acres are classified as capable for grazing (this figure is revised from 3200 reported in the Scoping Report). The vegetation types found on the allotment are desert grassland (22%), broadleaf woodland (52%), mixed coniferous forest (3%), transitional coniferous forest (3%), deciduous riparian area (7%) and coniferous riparian area (2%). Lehmann lovegrass occupies part of the desert grassland area. It is believed to have moved onto the site from the neighboring Fort Grant prison and road right-of-way, where it has been seeded in the past.

In the days when Fort Grant was a military installation (1872-1894), the flatter areas of what is now the Grant Creek Allotment were heavily grazed by military stock. After the closure of the Fort, the area was considered open range, mostly controlled by the Seventy-Six Cattle Co. When the Mt. Graham Forest Reserve was established in 1902 the area was part of the large grazing allotment described earlier in this report (Existing Condition: Gillespie Allotment). In 1942, the 76 Allotment was separated as a unit, and in 1958, the Grant Creek allotment was split off from the 76 with a use of 20 head yearlong. The allotment was also crossed fenced in 1958, creating two pastures.

In 1965, a new pasture containing 632 acres was added to the Grant Creek Allotment from the neighboring O-O Allotment. A production and utilization study that year determined that the appropriate stocking rate, with the new pasture capacity, was 37 cattle yearlong. The allotment was stocked with 30 cattle yearlong managed as a three pasture rest rotation. In 1987, the management was modified to a deferred rest rotation. In 1988, an Allotment Management Plan was prepared that combined the management of the Gillespie Allotment with the Grant Creek Allotment. This plan included a number of new improvements as well as plans for prescribed burns in both allotments. The plan was partially successful, and the burn on Gillespie was accomplished. In 1994, the combined allotment management was ended. Management of the Grant Creek allotment reverted to 30 cattle, yearlong, in a deferred rest-rotation system.

The current permit for the Grant Creek Allotment allows 30 cattle, cow/calf, yearlong. Cattle are managed in a three pasture deferred rest-rotation. The Upper Grant pasture is used only in the winter (November through March). The maximum allowable use rate in the Upper Grant pasture is 50%. Lower

Grant pasture and Gold Gulch pasture are used alternately in the spring (April through June) and summer (July through October). The utilization rate for these pastures and in the Grant Creek riparian area is 40%. Utilization measurements on native key species in 1999 showed use at or below 40%. The allotment was fully stocked at the time.

Below, the existing vegetation condition and trend, and also the predicted condition and trend for the proposed action and alternatives at the end of the permit period for the Grant Creek Allotment are displayed. Predictions are made with the assumption that grazing is the only effect. Table 5a displays percentage of acres capable for grazing, Table 5b applies to acres not capable for grazing. A short discussion follows.

Note: Only the condition within the proposed boundary is displayed in the following tables. This is the area that has been and will be affected by management activities.

TABLE 5a: EXISTING AND PROJECTED UPLAND RANGELAND VEGETATION CONDITION AND TREND, GRANT CREEK ALLOTMENT, PERCENTAGE OF ACRES CAPABLE FOR GRAZING

Condition Class: Percent of Allotment	Exist. Condition	No Action/No Grazing (Alternative 1)	Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
HIGH				
<i>Upward Trend</i>	11			
<i>Static Trend</i>		11	11	11
MODERATELY HIGH				
<i>Upward Trend</i>	32	37	35	35
<i>Static Trend</i>	47	47	47	47
MODERATELY LOW				
<i>Upward Trend</i>	10	5	7	7
LOW	0	0	0	0

TABLE 5b: EXISTING AND PROJECTED UPLAND RANGELAND VEGETATION CONDITION AND TREND, GRANT CREEK ALLOTMENT, PERCENTAGE OF ACRES NOT CAPABLE FOR GRAZING

Condition Class Percent of Allotment	Exist. Condition	No Action/No Grazing (Alternative 1)	Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
HIGH	0	0	0	0
MODERATELY HIGH				
<i>Static Trend</i>	100	100	100	100
MODERATELY LOW	0	0	0	0
LOW	0	0	0	0

Grazing Effects, Upland Vegetation: The grassland vegetation community is currently in moderately high condition with an upward trend in much of the desert grassland areas. Part of the lower elevation grasslands have been invaded by Lehmann lovegrass. These areas are in moderately low condition with an upward trend. Woodlands are in moderately high condition with a static trend. The deciduous riparian area associated with Grant Creek is in high condition with an upward trend.

The No Action/No Grazing Alternative (Alternative 1) will have no effects from grazing. Conditions in the grassland will continue to improve. Woodland sites that have been impacted by grazing will also continue to improve. However, woodland sites are probably at or near a steady state and will not change much in the absence of fire. Because the condition of the rangeland vegetation under current management is improving, this improvement is expected to continue with Alternatives 2 and 3, although probably at a slower rate than with Alternative 1. Alternative 3 proposes a change in boundary that results in a reduction of not-capable acres, from 2436 to 465. There will be no difference in effects from grazing between Alternatives 2 and 3.

In terms of cumulative effects related to planned and past projects in the area, improvement will be more dramatic than depicted in Tables 5a and 5b if the use of prescribed fire is used. Although there are no current plans for prescribed burning within the Grant Creek Allotment, there is a high likelihood that projects of that type will be proposed within the proposed permit period. Lehmann lovegrass is naturalized in many areas. Grazing as proposed under Alternatives 2 and 3 will not affect the further establishment or reduction of this species within the allotment. However, use of fire (prescribed or wild) in the desert grassland vegetation type may increase the area occupied by Lehmann lovegrass. There is one road within the allotment. Use of this road by cattle is not a significant source of road degradation. Historic overgrazing impacts are evident, but conditions are improving and are projected to continue to improve under all alternatives.

Riparian Areas

Affected Environment, Veach Allotment: A segment of Stockton Wash within the Veach Allotment is designated as Management Area 7 (riparian vegetation emphasis) in the Forest Land Management Plan (FLMP). See the discussion of the Gillespie Allotment, below, for the results of a RASES analysis in Stockton Wash. The GIS vegetation layer for the Veach Allotment contains no riparian vegetation.

Veach, Dutch Henry and Lefthand Canyons were surveyed in 1998. Although they were found not to be true riparian areas, a Riparian Area Survey and Evaluation System (RASES) assessment was made for each.

In Veach Canyon overall vigor and species diversity were good. Size and age class distribution were good. Hackberry and soapberry (not present in previous years) are regenerating well. An upward trend was indicated. No negative impacts were noted.

In Dutch Henry Canyon overall vigor and species diversity were fair. Ash and hackberry were the only riparian species present. The ash was decadent and the hackberry appeared stunted. Desert broom was thriving. This is a normally dry site that appeared to be further desiccated by five years of drought. A static to slightly downward trend was indicated. No negative impacts from management activities were noted.

Lefthand Canyon showed good overall vigor and species diversity. A lot of hackberry seedlings were observed. Deergrass was abundant. The trend was found to be slightly upward. Livestock use was minimal, no negative impacts were noted.

Grazing Effects, Veach Allotment: RASES assessments indicate that grazing under current management (Alternative 2) is not limiting the development of riparian vegetation. Under Alternative 2 and Alternative 3 (Proposed Action/Preferred Alternative), utilization of forage plants is limited to 40% in areas with riparian vegetation. Also, the allotment is used in the winter only so is rested every growing season. These management controls will limit the effects of grazing and other livestock impacts to riparian vegetation. Alternative 1 will have no impacts from livestock grazing.

Affected Environment, Gillespie Allotment: Gillespie Wash and Stockton Pass Wash are designated as Management Area (riparian vegetation emphasis) in the Forest Plan. Current management is consistent with the Forest Plan. Although they are not mapped as riparian areas in the GIS data layer, both washes support large amounts of riparian vegetation.

Gillespie Wash was evaluated north and south of the Highway 266 crossing in 1998 using the PFC method. It was found to be Functional at Risk south of the bridge, with slight risk attributed to downcutting and unsatisfactory age class distribution. North of the bridge, the channel was found to be Functional.

Stockton Pass Wash was evaluated using the RASES method. A good diversity of species was represented, and age class distribution was excellent. No negative impacts were observed.

Righthand Canyon also supports some riparian species. The RASES method was used to evaluate the area in 1998. Overall vigor, species diversity, age and size class distribution were good. The most common species were willow (*Salix sp.* and *Baccharis sp.*). Regeneration of ash and willow was evident. Deergrass was abundant and vigorous. No negative impacts were observed.

Grazing Effects, Gillespie Allotment: Righthand Canyon, Gillespie Wash and Stockton Pass Wash all support riparian vegetation. No significant impacts from grazing were observed in evaluations completed in 1998. Grazing under current management (Alternative 2) is not limiting the development

of riparian vegetation. Utilization of forage plants is limited to 40% in areas with riparian vegetation. Alternatives 2 and 3 (Proposed Action/Preferred Alternative). Also, the allotment is used in a rest rotation grazing system with regularly scheduled growing season rest. These management controls will limit the effects of grazing and other livestock impacts to riparian vegetation. Alternative 1 will have no impacts from livestock grazing. Discontinuation of grazing will not, as an independent action, lead to the development of a riparian area or wetland in Cienega Pasture.

Affected Environment, Grant Creek Allotment: Grant Creek is a true riparian area and is designated as Management Area 7 (riparian vegetation emphasis) in the FLMP. There is a dam on the creek, and water is impounded there to be used by the prison at Fort Grant. The channel below the dam was evaluated in 1998 using the RASES and the PFC methods. Overall vigor, species diversity, age and size class distribution were good. There is a road that runs through the channel that is causing erosion as it crosses onto the stream terrace. Also, there is a poorly constructed road drainage ditch that is causing bank cutting. Grazing impact was not significant. Because the area is mapped as a riparian vegetation type, assignment of condition classes were made. The area was rated as satisfactory using the RASES method and functional-at-risk using the PFC method, with risk attributed to the road. Although no mention was made in the evaluation about the effects of the water diversion, this area would be more productive if there were natural flows in the channel.

Grazing Effects: Riparian Areas, Grant Creek Allotment: Grazing under current management (Alternative 2) is not causing negative impacts to the riparian area supported by Grant Creek. Utilization of forage plants is limited to 40% in the riparian areas under Alternatives 2 and 3 (Proposed Action/Preferred Alternative). Also, there is regularly scheduled growing season rest in the pastures that include the Grant Creek riparian area. These management controls will limit the effects of grazing and other livestock impacts to riparian vegetation. Alternative 1 will have no impacts from livestock grazing.

C. Soil (Issue 4)

The following discussion is derived from Document 44:

General

Livestock grazing for 10 years may impact soil function by compacting the soil surface (hydrologic function), removing plant material (stability), or changing the plant community composition (nutrient cycling). The starting point for this report was a soil condition assessment that was made for the entire Pinaleno EMA in 1998. The assessment used the Region 3 General Ecosystem Survey (1:250,000 scale) further broken down into several slope and vegetation classes, and rated as either satisfactory, unsatisfactory or unsuited. Since then, Regional standards for Soil Condition have changed. A new condition class, impaired, has been added and the unsuited category has been dropped (FSM 2509.18 Soil Management, R-3 Supplement No. 2509.18-99-1, effective October 20, 1999). In 1999, ratings were adjusted to reflect site-specific information about vegetation communities and soil cover, and to reflect the new standards. Most of what had been rated as unsuited under the previous large-scale analysis is rated as satisfactory under the new standards because they are not affected by management activities. The previous unsatisfactory classification is now rated as unsatisfactory, impaired or satisfactory based on degree of loss of function. Information about slope, vegetation community and soil properties was used as a basis for ratings.

All soils must be managed to maintain or improve long-term productivity. This can be accomplished by implementing the following Best Management Practices: Annually prepare an operating plan with the permittee to allow for current allotment conditions; make periodic field checks to identify needed adjustments in season of use and livestock numbers including stock counts, forage utilization, assessment of rangeland to verify soil and vegetative condition and trend; and use necessary techniques to achieve proper distribution, or lessen the impact on areas which are sensitive or which would naturally be overused.

Note: Acreage figures and classifications reported here may differ from the Scoping Report of April 14, 1999. This difference is a result of the site-specific analysis at the project level.

Veach Allotment:

Affected Environment, Soil Condition: The Veach Allotment currently contains 13,271 acres, of which 6,671 are classified as capable for livestock grazing. If the Proposed Action/Preferred Alternative is implemented, the total acres will be reduced to 11,520, of which 6,528 are capable for grazing. Ratings reported here are for the proposed allotment boundary, as that is the area that has been and will be affected by management activities. Tables 6a and 6b below display the existing soil condition for capable and not-capable acres respectively. The predicted condition for the proposed action and alternatives at the end of the proposed grazing permit period are also displayed. These predictions assume that grazing is the only effect on soil condition. A discussion of grazing effects follows.

TABLE 6a: SOIL CONDITION, VEACH ALLOTMENT, PERCENT OF ACRES CAPABLE FOR GRAZING

Condition Class (percent of capable acres)	Exist. Condition	No Action/No Grazing (Alternative 1)	Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
Satisfactory	78	80	79	79
Impaired	22	20	21	21
Unsatisfactory	0	0	0	0

TABLE 6b: SOIL CONDITION, VEACH ALLOTMENT, PERCENT OF ACRES NOT CAPABLE FOR GRAZING

Condition Class (percent of not capable acres)	Exist. Condition	No Action/No Grazing (Alternative 1)	Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
Satisfactory	100	100	100	100
Impaired	0	0	0	0
Unsatisfactory	0	0	0	0

Grazing Effects, Soil Condition: The soil condition assessment shows that 78 percent of the soils within capable acres are in satisfactory condition, and 22 percent are impaired. The area of soil impairment is in the desert grassland vegetation type on slopes of less than 15%. These soils were heavily impacted by past grazing practices. Improvement of soil condition is a slow process. Under

current management, the allotment is grazed in the dormant season only, with moderate utilization rates. This type of grazing management has the least impact to native grasses. Current management has resulted in improved vegetation conditions that will lead to improved soil condition.

The No Action/No Grazing alternative will lead to improved soil condition, inferred by more vegetation cover, at a faster rate than for current management in some areas; cattle bed grounds, around water sources and to a lesser extent in areas that are from 0 - 15% slope. The difference in soil condition between the three alternatives will be slight at slopes greater than 15% in the term of the proposed grazing permit (10 years).

Soils in non-capable areas are rated as satisfactory by definition, because they have been minimally affected by management activity. There will be minimal effects from grazing to soils in non-capable areas. For this reason, soil condition is predicted to remain static for both alternatives in the absence of fire or some other form of disturbance.

Gillespie Allotment:

Affected Environment, Soil Condition: The Gillespie Allotment contains 8234 acres, of which 5,662 acres are classified as capable for grazing. If the proposed action is implemented, the number of capable acres will be 5,630. Ratings reported here are for the proposed allotment boundary, as that is the area that has been and will be affected by management activities. Tables 7a and 7b below display the existing soil condition for capable and not-capable acres respectively. The predicted condition for the proposed action and alternatives at the end of proposed grazing permit period are also displayed. These predictions assume that grazing is the only effect on soil condition. A discussion of grazing effects follows.

TABLE 7a: SOIL CONDITION, GILLESPIE ALLOTMENT, PERCENT OF ACRES CAPABLE FOR GRAZING

Condition Class (percent of capable acres)	Exist. Condition	No Action/No Grazing (Alternative 1)	Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
Satisfactory	90	93	92	92
Impaired	10	7	8	8
Unsatisfactory	0	0	0	0

TABLE 7b: SOIL CONDITION, GILLESPIE ALLOTMENT, PERCENT OF ACRES NOT CAPABLE FOR GRAZING

Condition Class (percent of not capable acres)	Exist. Condition	No Action/No Grazing (Alternative 1)	Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
Satisfactory	100	100	100	100
Impaired	0	0	0	0
Unsatisfactory	0	0	0	0

Grazing Effects, Soil Condition: The soil condition assessment for the Gillespie Allotment shows that 90 percent of the soils within capable acres are in satisfactory condition and 10 percent are in impaired condition. Improvement of soil condition is a slow process. Under current management, cattle graze in the Righthand and Mountain Trap pastures each winter from 11/1 to 2/28. Cattle are rotated through the remaining seven pastures from March 1 to October 31, with use in each pasture varying from zero to three months. This management plan provides the flexibility to schedule growing season rest in most pastures in most years. Current management has resulted in improved vegetation conditions that will lead to improved soil condition.

The Cienega Pasture has a large gully area running parallel to Highway 266, resulting in a localized impaired condition. A recent high-flow event in the area showed minimal evidence of active erosion within the gully. The presence of CCC structures indicates that the area was actively cutting during or before the 1930s.

No Action/No Grazing (Alternative 1) will lead to improved soil condition, inferred by more vegetation cover, at a faster rate than for Current Management (Alternative 2) or the Proposed Action/Preferred Alternative (Alternative 3) in some areas; cattle bed grounds, around water sources and to a lesser extent in areas that are from 0 - 15% slope. The difference in soil condition between all three the alternatives will be slight in the term of the proposed grazing permit (10 years).

Soils in non-capable areas are rated as satisfactory by definition, because they have been minimally affected by management activity. There will be minimal effects from grazing to soils in non-capable areas. For this reason, soil condition is predicted to remain static for both alternatives in the absence of fire or some other form of disturbance.

Grant Creek Allotment:

Affected Environment, Soil Condition: The Grant Creek Allotment contains 5,325 acres, of which 2,888 acres are classified as capable for grazing. If the proposed action is implemented, the capable acreage will be 2,685. Ratings reported here are for the proposed allotment boundary, as that is the area that has been and will be affected by management activities. Tables 8a and 8b below display the existing soil condition for capable and not-capable acres respectively. The predicted condition for the proposed action and alternatives at the end of proposed grazing permit period are also displayed. These predictions assume that grazing is the only effect on soil condition. A discussion of grazing effects follows.

TABLE 8a: SOIL CONDITION, GRANT CREEK ALLOTMENT, PERCENT OF ACRES CAPABLE FOR GRAZING

Condition Class (percent of capable acres)	Exist. Condition	No Action/No Grazing (Alternative 1)	Current Management (Alternative 3)	Proposed Action/Preferred Alternative (Alternative 3)
Satisfactory	100	100	100	100
Impaired	0	0	0	0
Unsatisfactory	0	0	0	0

TABLE 8b: SOIL CONDITION, GRANT CREEK, ALLOTMENT, PERCENT OF ACRES NOT CAPABLE FOR GRAZING

Condition Class (percent of not capable acres)	Exist. Cond.	No Action/No Grazing	Current Management	Proposed Action
Satisfactory	100	100	100	100
Impaired	0	0	0	0
Unsatisfactory	0	0	0	0

Grazing Effects, Soil Condition: The soil condition assessment shows that 100 percent of the soils within capable acres are in satisfactory condition. There are small areas of soil impairment associated with the road, as described in the Grant Creek riparian area assessment. These areas are too small to map. Under current management, one pasture is rested every growing season, and each of the other two pastures is rested every other growing season. This management will allow vegetation cover to improve. Current management has resulted in improved vegetation conditions that will lead to improved soil condition.

The No Action/No Grazing alternative will lead to improved soil condition, inferred by more vegetation cover, at a faster rate than for Current Management in some areas; cattle bed grounds, around water sources and to a lesser extent in areas that are from 0 - 15% slope. The difference in soil condition between all of the alternatives will be slight in the term of the proposed grazing permit (10 years).

Soils in non-capable areas are rated as satisfactory by definition, because they have been minimally affected by management activity. There will be minimal effects from grazing to soils in non-capable areas. For this reason, soil condition is predicted to remain static for both alternatives in the absence of fire or some other form of disturbance.

D. Water

The following discussion is derived from Document 44:

Affected Environment

Lower Gila River Watershed: The Veach and Gillespie Allotments are within the Lower Gila River 5th Code Watershed. This watershed is about 1,700,000 acres in size, of which 158,153 acres (9%) are National Forest. The combined acreage for the Veach and Gillespie Allotments in this watershed is currently 20,877 acres (or 1%). If the Proposed Action is implemented for both allotments, the combined acreage will be 18,603 acres (or less than 1%). The City of Safford and numerous small towns are within this watershed. Land uses on private land are those associated with agriculture and rural development. Uses on Federal and State lands are primarily grazing and recreation.

Willcox Playa Watershed: The Grant Creek Allotment is within the Willcox Playa 5th Code Watershed. This watershed is about 1,000,000 acres in size, of which 172,561 acres (17%) are National Forest. The Grant Creek Allotment is currently 5325 acres (or 0.5%). If the Proposed Action is implemented, the Grant Creek Allotment will be 3150 acres (or 0.3%). The City of Willcox and numerous small towns are within this watershed. Land uses on private land are those associated with agriculture and rural development. Uses on Federal and State lands are primarily grazing and recreation.

San Simon Creek Watershed: Around 628 acres of the Gillespie Allotment are within the San Simon Creek 5th Code Watershed. This watershed is about 1,400,000 acres in size, of which 184,000 acres (13%) are National Forest. The Gillespie Allotment represents around .04% of the watershed. Land uses on private land are those associated with agriculture and rural development, although this watershed is sparsely inhabited and agriculture is very limited. The primary use on Federal and State lands is grazing.

Environmental Effects

No tests have been made within the project area to evaluate water quality parameters that may be affected by watershed condition. However, none of the downstream waters are listed in the 1998 Arizona Department of Water Quality Assessment as "water quality limited". This means that the project area is contributing to a high quality system.

Grazing Effects: Under Alternatives 2 and 3, livestock grazing will take place along Gillespie Wash, Stockton Pass Wash and Grant Creek. Livestock gathering activities will take place along Gillespie Wash and Stockton Pass Wash. Livestock use is identified as a source of concern for water contamination in Arizona where appropriate management of cattle is lacking. Implementation of Best Management Practices (BMP's) will be effective in managing cattle grazing to maintain or improve water quality. See FSH 2509.22 for appropriate BMP's. In the case of all three allotments, the presence of cattle in riparian areas is limited in timing and intensity under either of the action alternatives. Because soil conditions are satisfactory over much of the project area and areas with soil impairment or unsatisfactory soils are improving under current management, it is not expected that the proposed grazing under Alternative 2 (Continue Current Management) or Alternative 3 (Proposed Action/Preferred Alternative) will be detrimental to the quality of downstream water.

E. Air

The following discussion is derived from Document 44:

Affected Environment:

The project area is not located in an air quality non-attainment area for any air quality constituent. This means that air quality is excellent. The project is not located in a Class I Wilderness Area.

Environmental Effects:

There will be no measurable effects to air quality under Alternative 1, Alternative 2 or Alternative 3 for any of the three allotments.

F. Cumulative Effects to Vegetation, Riparian Areas, Soil, Water and Air

Past, present, and foreseeable future projects or actions that have affected or will affect the project area include historic heavy grazing, prescribed and natural fires, wildfire suppression, invasive exotic plants, and water diversions. These occurrences have contributed incrementally to effects that have changed ecological conditions of the area. The proposed action and alternatives, because they are designed to implement properly managed grazing, will not contribute effects that would further adversely change the ecological conditions of the analysis area. The proposed action and alternatives will not preclude future projects designed to eliminate invasive exotic plants, those designed to return fire to a more natural role in the ecosystem, or those that re-build or enhance erosion control structures.

G. Wildlife (Issues 1 & 2)

The following discussion is derived from Document 35:

Affected Environment:

The Pinaleno Mountains are home to a diverse assemblage of animal species due to the variability of available habitat that occurs over a limited geographic area. The area supports a variety of species that either use the area seasonally or are found there year round. Typical mammals include Coues whitetail deer (*Odocoileus virginianus couesi*), western spotted skunk (*Spilogale gracilis leucoparia*), black bear (*Ursus americanus amblyceps*), striped skunk (*Mephitis mephitis*), ringtail (*Bassariscus astutus arizonensis*), coati (*Nasua nasua*), Mexican woodrat (*Neotoma mexicanus*), and rock squirrel (*Spermophilus variegatus*). The area is likely to be used for foraging by a variety of bat species such as fringed myotis (*Myotis thysanoides*), big brown bat (*Eptesicus fuscus*), and hoary bat (*Lasiurus cinereus*).

Typical avifauna of the area includes White-winged dove (*Zenaida asiatica*), Mourning dove (*Z. macroura*), Western screech owl (*Otus kennicottii*), Whip-poor-will (*Caprimulgus vociferous*), Ash-throated flycatcher (*Myiarchus cinerascens*), Cassin's kingbird (*Tyrannus vociferans*), Stellar's jay (*Cyanocitta stelleri*), Scrub jay (*Aphelocoma coerulescens*), Common raven (*Corvus corax*), Mountain chickadee (*Parus gambeli*), Bushtit (*Psaltiriparus minimus*), Brown creeper (*Certhia Americana*), Crissal thrasher (*Toxostoma dorsale*), Virginia's warbler (*Vermivora virginiae*), Red-faced warbler (*Cardelina rubrifrons*), Black-headed grosbeak (*Pheucticus melanocephalus*), Black-chinned sparrow (*Spizella atrogularis*), and Red crossbill (*Loxia curvirostra*). Raptors such as Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), great-horned owl (*Bubo virginianus*) may also use the area for foraging or possibly nesting.

Reptile species that may occur in the area include Arizona black rattlesnake (*Crotalis viridus cerberus*), Yarrow's spiny lizard (*Sceloporus jarrovi*), many-lined skink (*Eumeces callicephalus*), and striped plateau lizard (*Sceloporus virgatus*).

Recent breeding bird surveys of the Marijilda allotment (immediately north of the Veach Allotment) by Forest Service wildlife biologists included observations of Mearn's quail (*Cyrtonyx montezumae*). The Pinaleno EMA does not include any areas mapped as High Density Mearn's Quail Habitat. Nonetheless, the analysis area is within the range of the species and supports suitable (though not optimal) habitat.

Threatened, Endangered, Proposed, and Sensitive Species

The Endangered Species Act of 1973 as amended (ESA) states that a biological assessment shall be prepared for species which may be present in the proposed project area. The Forest Service Manual (FSM 2672.4) instructs that a Biological Evaluation and Assessment (BAE) document will be prepared to display effects of the Preferred Alternative on federally listed threatened, endangered, proposed or Forest Service sensitive species. The BAE will include those species that may be present in the proposed project area. At this time, certain TEPS species are discussed as likely to be included in a BAE.

Approximately 50 special status species including threatened, endangered, proposed, or sensitive species are known to occur or suspected to occur in the Pinaleno EMA. The following table includes 19 special status species that are known to occur or are likely to occur in the allotments. These species are the subject of the Biological Assessment and Evaluation (BAE), currently in process.

TABLE 9: SPECIAL STATUS SPECIES

Common Name	Scientific Name	Status
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuena</i>	Endangered
Mexican spotted owl (MSO)	<i>Strix occidentalis lucida</i>	Threatened
MSO Critical Habitat (CH)		Proposed
Northern Aplomado falcon	<i>Falco femoralis septentrionalis</i>	Endangered
Apache trout	<i>Onchorhynchus apache</i>	Threatened
Jaguar	<i>Panthera oncha</i>	Endangered
Chiricahua leopard frog	<i>Rana chiricahensis</i>	Proposed
Desert Massasauga	<i>Sistrus catenatus edwardsi</i>	Sensitive
Gray-checked whiptail	<i>Cnemidophorus dixonii</i>	Sensitive
Greene milkweed	<i>Asclepias uncialis</i>	Sensitive
Sparseleaf hermania	<i>Hermannia pauciflora</i>	Sensitive
Pinos Altos flame flower	<i>Talinum humile</i>	Sensitive
Catalina beardtongue	<i>Penstemon discolor</i>	Sensitive
Aravaipa sage	<i>Salvia amissa</i>	Sensitive
Hawk-weed	<i>Hieracium rusbyi</i>	Sensitive
White-flowered cinquefoil	<i>Potentilla albiflora</i>	Sensitive
Mexican saber daisy	<i>Machaeranthera mexicana</i>	Sensitive
Arizona alum root	<i>Heuchera glomerulata</i>	Sensitive
Pinaleno Jacob's ladder	<i>Polemonium flavum</i>	Sensitive
Bigelow thoroughwort	<i>Eupatorium bigelovii</i>	Sensitive

Critical Habitat (CH) for the Mexican spotted owl (MSO) was proposed on July 21, 2000. The Critical Habitat polygon proposed for the Pinaleno EMA includes Protected habitat, Restricted habitat, and other forest and woodland types as defined in the MSO Recovery Plan (USDI Fish and Wildlife Service 1995). The majority of the proposed Critical Habitat in the Pinaleno EMA is comprised of broadleaf evergreen woodland and desert grassland. The Gillespie Allotment supports no protected or restricted habitat. Veach currently supports a small amount of transition conifer forest (which may or may not include restricted habitat). Grant Creek currently includes protected and restricted habitat.

Environmental Effects:

General: Improperly managed livestock grazing for a period of ten years has the potential to change habitat characteristics for wildlife species. Grazing levels that are too heavy can change plant communities, influence soil condition, and disrupt riparian communities. Biotic communities in the American Southwest evolved in the presence of large herbivores which have, only recently in geologic time, gone extinct. Impacts from properly managed livestock grazing are therefore well within historic disturbance regimes and are compatible with natural biotic communities.

In addition to livestock related impacts, long- and short-term weather patterns shape the character and distribution of wildlife habitat. In the Basin and Range province of the American Southwest, fluctuations in the amount and timing of annual rainfall (and snowfall at higher elevations) varies greatly. Because of this, it is not always possible to ascribe changes in vegetation (i.e. wildlife habitat) to livestock induced effects, versus effects of changes in annual precipitation or temperatures.

Experience has shown that certain management schemes allow for sustainable livestock use that is within the ecological limits of the communities that exist on the Coronado. Examples of grazing management that work well are winter-only grazing (generally occurring from around September through April) for the whole allotment, or deferred rest/rotation grazing which allows for a combination

of growing season rest, winter use in certain pastures, and short duration use in some instances. These types of management schemes allow managers to minimize adverse effects of livestock grazing on soils, riparian areas, and vegetation thereby reducing adverse effects to wildlife habitat.

Effects to vegetation are measured by monitoring utilization of key forage species in key areas, which are generally the flattest, most easily accessed areas of the allotment. When maximum allowable use is attained in an easily accessed key area, there is lower utilization on the steep, less easily accessed areas of the allotment. In this way overall utilization of the allotment is maintained at a moderate level.

From a wildlife perspective, these approaches to management are acceptable as long as key areas are representative of livestock use patterns, maximum allowable utilization is set at sustainable levels, and excessive impacts to riparian areas are avoided. Additionally, the approach relies heavily on monitoring to ensure that pasture moves are accomplished at the appropriate times. Also, range related structures such as fences and water developments must be designed to avoid creating hazards for wildlife or destroying sensitive wildlife habitat.

No Action/No Grazing (Alternative 1): Implementation of this alternative would remove livestock related disturbance to vegetation, soil, and riparian areas. It would not result in immediate recovery of grassland or woodland areas invaded by shrubs. Those areas would require some sort of treatment to recover.

The only negative effects to wildlife species that could result from this alternative relate to the lack of maintenance of range related improvements. In some cases, livestock waters currently benefiting wildlife would not be maintained and would eventually be unavailable to wildlife because of decay and damage. Additionally, collapsed fences and tangled barbed wire pose a hazard to larger wildlife species such as deer, javelina, bear, and turkeys. Implementation of this alternative would require a commitment to removal of range improvements and maintenance of former livestock waters to avoid adverse effects to wildlife species.

Continue Current Management (Alternative 2): Range condition on these allotments have improved as resource-driven changes in management occurred. Overall, improvement has occurred on the Veach allotment over the last 20 years and throughout the 1990's in particular as management became more consistent. Reduction in numbers in the Gillespie Allotment, a change in grazing schedule, and prescribed burns have resulted in improved condition. With low numbers (e.g. 30 head) and deferred rest-rotation management, conditions on the Grant Creek allotment are good. It is expected that continuation of current management will allow for the continuation of improvement on Veach and Gillespie and maintain good conditions on Grant Creek.

Grant Creek and Stockton Wash are designated as Management Area 7 (riparian) in the Coronado Land Management Plan. The upper elevations of Grant Creek are mapped as coniferous riparian, while the lower stretch is mapped as deciduous riparian. Existing management on the Grant Creek allotment has not shown adverse effects to the riparian area in Grant Creek. Continuation of this system is not expected to result in adverse effects to riparian habitat in Grant Creek. Stockton Wash is not mapped as either coniferous or deciduous riparian vegetation. Existing management on the Gillespie and Veach Allotments has not shown adverse effects to Stockton Wash., and continuation of this system is not expected to result in adverse effects to riparian vegetation in Stockton Wash.

Areas in the Veach allotment that support riparian species, such as Veach, Dutch Henry, and Lefthand

Canyons, are not being significantly impacted by livestock. In the Gillespie allotment, Righthand Canyon supports riparian vegetation and monitoring data show good vigor, species diversity, and size class distribution. Further development of riparian vegetation is not being limited in any of these canyons as indicated by the amount of regeneration present. Continuation of current management that has shown minimal livestock related impacts to riparian vegetation is not expected to degrade this important habitat in the allotment.

Effects of continuation of current management are not predicted to adversely influence wildlife resources on the three allotments. The important wildlife habitat parameters of riparian vegetation condition, soil condition, and range vegetation condition are acceptable or improving under current management when evaluated against historic conditions of the area. These changes have come about primarily as a result of resource-driven changes in range management of these allotments over the last 20 years. The most recent monitoring data show that existing numbers and management schemes are resulting in utilization of key species in key areas that are at or below maximum allowable utilization, which, as stated above, is the primary means of assessing the effectiveness of management.

Proposed Action/Preferred Alternative (Alternative 3): There are no expected differences in effects to wildlife related resources from grazing between current management and the Proposed Action/Preferred Alternative. The primary difference is the administrative change in boundaries.

Potential Effects to Threatened, Endangered, Proposed, and Sensitive Species (TEPS)

The Veach, Gillespie, and Grant Creek allotments were included in the short term (e.g. three years) effects assessment of the on-going grazing Biological Assessment (BA). That BA was the subject of Section 7 consultation with the U.S. Fish and Wildlife Service (Consultation Number # AESO/SE 2-21-98-F-399) and considered potential effects to eighteen federally listed species. A non-jeopardy Biological Opinion (BO) was received from the USFWS that included terms and conditions and concurrences for some species.

The effects determinations in that BA were based on the Regional Guidance Criteria. If those criteria were applied to this alternative analysis the determinations would be as follows:

Lesser long-nosed bat (LLNB)

- Based on the Guidance Criteria, the determination of effect to LLNB by either alternative 2 or 3 on **Veach** would be Likely to Adversely Affect (LAA) because utilization and season of use violate criteria 6 and 7.
- Based on the Guidance Criteria, the determination of effect to LLNB by either alternative 2 or 3 on **Gillespie** would be LAA because utilization and season of use violate criteria 6 and 7.
- Based on the Guidance Criteria, the determination of effect to LLNB by either alternative 2 or 3 on **Grant Creek** would be LAA because utilization and season of use violate criteria 6 and 7.

Mexican spotted owl (MSO)

- Based on the Guidance Criteria, the determination of effect to MSO by either alternative 2 or 3 on **Veach** would be No Effect (NE) because grazing activities conform to the No Effect criteria.
- Based on the Guidance Criteria, the determination of effect to MSO by either alternative 2 or 3 on **Gillespie** would be NE because grazing activities conform to the No Effect criteria.
- Based on the Guidance Criteria, the determination of effect to MSO by either alternative 2 or 3

on **Grant Creek** would be NE because grazing activities conform to the No Effect criteria.

Aplomado falcon

- Based on the Guidance Criteria, the determination of effect to Aplomado falcon by either alternative 2 or 3 on **Veatch** would be Not Likely to Adversely Affect (NLAA) because grazing activities conform to all pertinent criteria.
- Based on the Guidance Criteria, the determination of effect to Aplomado falcon by either alternative 2 or 3 on **Gillespie** would be NLAA because grazing activities conform to all pertinent criteria.
- Based on the Guidance Criteria, the determination of effect to Aplomado falcon by either alternative 2 or 3 on **Grant Creek** would be NLAA because grazing activities conform to all pertinent criteria.

Jaguar

- Based on the Guidance Criteria, the determination of effect to Jaguar by either alternative 2 or 3 on **Veatch** would be NLAA because grazing activities conform to all three pertinent criteria.
- Based on the Guidance Criteria, the determination of effect to Jaguar by either alternative 2 or 3 on **Gillespie** would be NLAA because grazing activities conform to all three pertinent criteria.
- Based on the Guidance Criteria, the determination of effect to Jaguar by either alternative 2 or 3 on **Grant Creek** would be NLAA because grazing activities conform to all three pertinent criteria.

Apache trout

- Based on the Guidance Criteria, the determination of effect to Apache trout by either alternative 2 or 3 on **Veatch** would be NE because criteria 1 has been met.
- Based on the Guidance Criteria, the determination of effect to apache Trout by either alternative 2 or 3 on **Gillespie** would be NE because criteria 1 has been met.
- Based on the Guidance Criteria, the determination of effect to apache Trout by either alternative 2 or 3 on **Grant Creek** would be LAA because criteria 1B and 1D have not been met.

Chiricahua leopard frog

- There are no guidance criteria for this species.

Flexibility of the analysis process is limited under the Guidance Criteria. The Guidance Criteria, as designed, are an extrinsic, broad-scale supposition of potential effects from allotment management. Actual changes in management that were successful in bringing about changes in condition or trend are not considered in the analysis process of the Guidance Criteria. Nor does actual distribution of listed species play a significant role in the process. The use of site-specific analysis versus the Guidance Criteria results in contrasting effects determinations. The following table includes the effects determinations that result from a site-specific analysis. The analysis driving these determinations rely heavily on allotment management history and the resulting improvement in conditions, as well as the known distribution and potential occurrence of the targeted species.

TABLE 10: EFFECTS ON THREATENED, ENDANGERED, PROPOSED AND FOREST SERVICE SENSITIVE SPECIES
(Based on site-specific analysis)

Common Name	No Action Alternative	Alternatives 2 and 3
Lesser long-nosed bat	NE	NE (NLAA Gillespie only)
Mexican spotted owl	NE	NLAA
MSO Critical Habitat	NE	MA*
Aplomado falcon	NE	NE
Apache trout	NE	NE
Jaguar	NE	NE
Chiricahua leopard frog	NJ*	NJ
Desert Massasauga	NI*	NI
Gray-checked whiptail	NI	NI
Greene milkweed	NI	NI
Sparseleaf hermannia	NI	NI
Pinos Altos flame flower	NI	NI
Catalina beardtongue	NI	NI
Aravaipa sage	NI	NI
Hawk-weed	NI	NI
White-flowered cinquefoil	NI	NI
Mexican saber daisy	NI	NI
Arizona alum root	NI	NI
Pinaleno Jacob's ladder	NI	NI
Bigelow thoroughwort	NI	NI

* - MA = May Affect; NJ = Not likely to Jeopardize; NI = No Impact to individuals and not likely to lead to a trend toward federal listing.

The following are brief summary discussions of the reasoning behind the site-specific determinations. A more complete discussion is being developed as part of the BA/E being prepared for the Proposed Action/Preferred Alternative.

Lesser long-nosed bat - The Guidance Criteria resulted in a determination of "Likely to Adversely Affect" because maximum allowable utilization is set at 50% whereas the criteria call for 45% (Criteria 6). Additionally, cattle are in the presence of agave plants between 15 April and 15 September (Criteria 7). This criterion actually refers to "high densities" which are not defined, but based on observations by District personnel there are areas that support large numbers of agaves in the allotments.

The site specific analysis leads to a determination of "Not Likely to Adversely Effect" for Gillespie allotment because the only record of this species in the Pinaleno Mountains is a single juvenile captured in Gillespie Wash. Range conditions are improving under existing management systems, numbers, and maximum allowable utilization. No evidence exists to link 50% utilization on key forage species in key areas to declines in agave populations. No large roosts exist in any of the allotments; a single observation of a pair of lesser long-nosed bats was made in the Galiuro Mountains, over 25 miles away. Because of these circumstances any potential effect on Gillespie allotment to this species would not be measurable and therefore would be considered discountable. No effects are expected to arise from either action alternative on the Veach and Grant Creek allotments

Mexican spotted owl - The guidance criteria determination is No Effect since data indicate that livestock grazing is not limiting woody or herbaceous vegetation necessary to support prey species and the grazing regime supports the implementation of fire management. Site specific analysis also results in a determination of No Effect to the species since livestock are unlikely to access the higher elevation, steep protected or restricted habitat areas except occasionally and in low numbers.

The site-specific analysis determination for proposed Critical Habitat is May Affect because the proposed Critical Habitat (CH) occurs within the analysis area. In this instance, the CH polygon includes portions of all three allotments. Within the CH polygon there are areas of vegetation type 9A (transition coniferous forest), which may include areas of restricted habitat as defined by the Recovery Plan. A smaller portion of these areas would remain in the allotments even after the administrative boundary is redrawn in Alternative 3. These areas are on steep, north-facing slopes and appear to support high canopy closure. Sites of that character on the Coronado National Forest do not tend to support high densities of livestock forage species. The steep nature of the terrain and lack of forage species make it unlikely that significant numbers of livestock will spend appreciable amounts of time in these areas. Of the eight Primary Constituent Elements of CH that are identified in the proposed rule, only two (i.e. those relating to plant species richness and residual plant cover) have the potential to be affected by livestock over the period of the ten-year permit. As discussed in an earlier section, monitoring data indicate that conditions under existing management are acceptable or improving. The most relevant of these data are utilization of key species in key areas. Since utilization in these easily accessible key areas have been at levels at or below the maximum, steeper areas supporting fewer forage species have been subjected to fewer impacts.

Grant Creek allotment also includes vegetation type 11A (deciduous riparian) that is considered restricted riparian habitat by the recovery plan. Recent data from designated riparian areas or areas that support riparian species in these allotments indicate that recruitment of woody species is not limited by grazing activities. Based on the above discussion, implementation of the action alternatives will result in no detectable effects to primary constituent elements.

Aplomado falcon - The Guidance Criteria are not easily fit to the situation on these allotments since there is potential habitat, but there are no Aplomado falcons to monitor. A determination of NLAA was used in the programmatic BA since livestock grazing occurs within unsurveyed potential habitat.

The site-specific determination is No Effect since there are no observations of this species in the analysis area. The most recent documented observations of this species were in the early 1990's in the Animas Valley of southwestern New Mexico. Vegetation in the allotments includes some desert grassland (Veach - 5042 ac.; Gillespie - 5516 ac.; Grant Creek - 1171 ac.), some of which still shows the effects of past heavy use. Monitoring data show that these areas have improved and continue to improve under existing management. Some areas of poor condition are rated as such because of invasive exotic or native shrubs, and will not improve without some sort of treatment not related to the proposed livestock grazing actions.

Apache trout - The guidance criteria determination would be LAA for Grant Creek and NE for Veach and Gillespie. The adverse effect is primarily due to the presence of livestock in lower Grant Creek between 1 March and 1 June.

A site-specific analysis results in a determination of No Effect since livestock are not present in occupied habitat or the subwatershed. A hybrid cross of Apache trout and rainbow trout occurs in Grant

Creek. The trout occurs upstream of a large waterfall that acts as both a natural fish barrier and a barrier to livestock. Conditions in the upper portions of the Grant Creek watershed are good to excellent.

Jaguar - Guidance Criteria determination of this species is NLAA. The site specific determination for the species is No Effect since the species is not known to occur in the analysis area.

Chiricahua leopard frog - The species was recently proposed for listing. The site-specific determination for the species is "not likely to jeopardize" since there are no Chiricahua leopard frogs known from the allotments. Nearest locations are in the Sulphur Springs valley. Watershed conditions near these localities are influenced primarily by thousands of acres of intervening State and private lands. Improved conditions resulting from improved management on the Grant Creek and Gillespie allotments will not contribute adversely to occupied, off-forest habitat for this species.

Other Sensitive Species- The remaining species included in the above effects table include both plant and animal species. Determinations for these species are "No Impact" based primarily on the lack of occurrence of suitable habitat for the species on the allotments or lack of livestock related impacts to resources important to these species. Examples are plants such as Pinaleno Jacob's ladder which occur at elevations above those which occur in the allotments, or the Gray checkered whiptail lizard which prefers rocky, sparsely vegetated habitat that is not degraded by livestock use.

H. Heritage (Cultural) Resources and Traditional Cultural Properties

Affected Environment

Heritage resources (also called "cultural resources") include archaeological and historical sites, and properties important to maintaining the traditional beliefs and lifeways of local social groups ("traditional cultural properties"). The Pinaleno Ecosystem Management Area (EMA) has a long history. Remains of the prehistoric Archaic, Hohokam, and ancestral Pueblo cultures have been found within the EMA. Historically, it was used by the Chiricahua and Western Apache. The nearby Gila Valley was settled by Mormon pioneers in the 1870s. Seventeen archaeological and historical sites have been recorded within the Veatch, Gillespie and Grant Creek Allotments. Today, the area and the sites are of interest to the Hopi Tribe, Pueblo of Zuni, Western Apache (primarily San Carlos Apache and White Mountain Apache), Chiricahua Apache (Fort Sill Chiricahua and Mescalero Apache), Tohono O'odham, archaeologists, and the descendants of the nineteenth-century settlers. The Pinaleno EMA also includes *Dzil nchaa si'an*, a sacred place of paramount importance to the Western Apache (Docs. 37 & 46).

Environmental Effects

The alternatives considered in this Environmental Assessment either reduce (No Action/No Grazing, Alt. 1; Proposed Action/Preferred Alternative, Alt. 3) or maintain (Continue Current Management, Alt. 2) animal months of grazing with the Veatch, Gillespie and Grant Creek Allotments. Grazing that maintains rangeland in satisfactory condition has little effect on heritage resources. However, even on properly-managed rangelands, concentration of livestock on archaeological and historical sites can result in damage to artifacts and structures, and alteration of the spatial relationships between artifacts. The latter impact can compromise the ability of the remains to provide historical information.

To assess the impacts of grazing on archaeological and historic sites, existing inventory data were reviewed, and were supplemented by field inspections of selected sites. Grazing is recorded as a

significant impact on one of the 20 archaeological or historical sites recorded in the allotments (Doc. 37). That is a result of the placement of a salt block within the site boundary, which has concentrated cattle on a portion of the site.

Concentration of livestock also generally occurs around range improvements. The Dripping Spring storage tank, proposed for reconstruction in Alternatives 2 and 3, was surveyed and no archaeological or historical sites were found.

The Cultural Preservation Office of the Hopi Tribe commented that livestock grazing can cause adverse impacts on archaeological sites and ethnobotanical plants such as tobacco (Docs. 37 & 45). The letter asked whether the allotments would be surveyed, and how the allotments would be managed to avoid impacts to sites and native plants, such as tobacco. The Tribe also pointed out the need for intensive traditional cultural property studies and ethnohistorical research, in order to fully identify Hopi interests and needs. Survey and grazing impact issues are discussed above. Allotments will be managed to maintain or improve vegetation condition, and to maintain or increase populations of threatened, endangered or sensitive species, which are native (see Vegetation and Wildlife sections, above). While it might be expected that No Action/No Grazing (Alternative 1) would be more beneficial to the growth of plants of interest to the Hopi, this is not always the case. For example, tobacco is a disturbance species on local rangelands, and would be favored by grazing levels that would be detrimental to other native plants. Overall, there is no appreciable difference in the effects of the alternatives considered on native plants. With regard to ethnohistorical research, the Forest is negotiating a Memorandum of Understanding with the Hopi Tribe that, among its provisions, recognizes the need for financial support of research on traditional use issues (Doc. 47).

The Veach, Gillespie and Grant Creek Allotments include lands that fall within the *Dzil nchaa si'an* traditional cultural property (Docs. 37 & 46). A determination of National Register of Historic Places eligibility has been drafted, has been reviewed by representatives of the White Mountain and San Carlos Apache Tribes, and revisions to reflect the comments are pending (Patricia Spoerl, personal communication, November 29, 2000). *Dzil nchaa si'an* is one of four (or according to some information, two) Western Apache sacred mountains (Doc. 46). In a response to the Scoping Report (Doc. 24), the San Carlos Apache Elder's Cultural Advisory Council noted "These allotments are in areas of great traditional cultural significance to Apaches. We still utilize some of these areas for traditional cultural practices. We ask that you design the plans to have a minimum impact on the vegetation, particularly on new Emory Oak growth." Potential changes in vegetation condition are summarized in the Vegetation section, above. The broadleaf woodland vegetation community is generally in good condition, with a static trend (stable in the absence of fire). From the standpoint of traditional Western Apache, No Action/No Grazing (Alternative 1) is likely to have less impact than Continue Current Management (Alternative 2) or the Proposed Action/Preferred Alternative (Alternative 3), as there is less manipulation of the environment (by cattle, or through maintenance of range improvements). Such manipulation is viewed as a physical wound when vegetation and earth are disturbed.

A report with a determination of "no adverse effect" has been submitted to the Arizona State Historic Preservation Office (Doc. 37). That determination is contingent upon removal of the salt block from the site referenced above.

I. Economic Viability of Permittee Operations, and Returns to the Local Economy (Issue 3)

Affected Environment

Livestock has impacts on local and regional economies as well as on the ranching operation. Economic impacts generally can be expressed as employment (number of jobs), government receipts, and revenue sharing (payments in lieu of taxes) to counties. Specific economic effects to permittees are mostly dependant on market fluctuations in the price of cattle, which makes quantification of the specific economic effects to the permittee for any alternative nearly impossible. However, the tracking of overall government receipts can serve as an indicator of permittee income trends.

The value of employment opportunities is calculated at the rate of 1.14 jobs per 100 animal unit years. This represents the total jobs supported by the activity throughout Arizona and New Mexico, including local area employment. Government receipts are calculated based on the 1999 grazing fee of \$1.35 per head month (Forest Service Manual, Interim Directive 2230-99-2). Payments to counties are calculated at 25% of total government receipts.

Environmental Effects

Tables 11a through 11c summarize the improvement costs associated with each alternative. Costs are based on Documents 26 & 27. No Action/No Grazing requires the least investment; Continue Current Management and the Proposed Action/Preferred Alternative require the most (as a result of replacement of the water storage at Dripping Spring). Costs for maintenance of range improvements are typically borne by the permittee, but in some cases the government shares the costs. In the case of the Dripping Spring storage replacement, the government will bear 75% of the cost, and the permittee 25% (Doc. 27).

Tables 12a through 12c show the economic differences between alternatives based on the permitted numbers depicted in Tables 2a through 2c, above. These calculations were completed to facilitate a relative comparison of alternatives. Actual use of the allotments will cause actual numbers to vary from year to year.

TABLE 11a -- COST OF PLANNED IMPROVEMENTS BY ALTERNATIVE, VEACH ALLOTMENT

Improvement Description	No Action/No Grazing (Alternative 1)	Continue Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
Replace existing water tank at Dripping Springs; add pipeline & trough	\$0	\$7,000	\$7,000

TABLE 11b – COST OF PLANNED IMPROVEMENTS BY ALTERNATIVE, GILLESPIE ALLOTMENT

Improvement Description	No Action/No Grazing (Alternative 1)	Continue Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
N/A	\$0	\$0	\$0

TABLE 11c – COST OF PLANNED IMPROVEMENTS BY ALTERNATIVE, GRANT CREEK ALLOTMENT

Improvement Description	No Action/No Grazing (Alternative 1)	Continue Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
N/A	\$0	\$0	\$0

TABLE 12a - ECONOMIC EFFECTS, VEACH ALLOTMENT

Economic Effect	No Action/No Grazing (Alt. 1)	Continue Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
Number of jobs	0	1.6	1.3
Government receipts	\$0	\$2,228	\$1,856
Payments to counties	\$0	\$557*	\$464

TABLE 12b - ECONOMIC EFFECTS, GILLESPIE ALLOTMENT

Economic Effect	No Action/No Grazing (Alt. 1)	Continue Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
Number of jobs	0	0.5	0.5
Government receipts	\$0	\$761	\$761
Payments to counties	\$0	\$190*	\$190

TABLE 12c - ECONOMIC EFFECTS, GRANT CREEK ALLOTMENT

Economic Effect	No Action/No Grazing (Alt. 1)	Continue Current Management (Alternative 2)	Proposed Action/Preferred Alternative (Alternative 3)
Number of jobs	0	0.3	0.3
Government receipts	\$0	\$486	\$486
Payments to counties	\$0	\$122*	\$122

*Total payments to Graham County, resulting from National Forest grazing, were \$55,481 in 1997 (Carol Boyd, personal communication, November 29, 1999.)

Implementation of the No Action/No Grazing Alternative would result in a slight reduction in jobs, government receipts, payments to Graham County, and permittee income compared to the Proposed Action (Continue Current Management).

J. National Forest Management Act Findings (NFMA):

The Coronado Land and Resources Management Plan became effective on August 4, 1986. Forest planning is currently guided by the Code of Federal Regulations (CFR) at 36 CFR 219. The planning

regulations state that projects implemented after the LRMP is in place must be "consistent with the plan" (36 CFR 219.10.e). The Veach, Gillespie and Grant Creek Allotment projects have been deemed consistent with the long-term goals and objectives listed on pages 9-11 of the current Coronado LRMP. The LRMP identified the allotments as suitable for grazing, and the area was included in Management Area 4 (LRMP, pages 62-66). Other NFMA consistency findings relate to the management of suitable timberlands. The allotment does not contain any suitable timberlands; therefore, the other NFMA consistency check requirements do not apply.

SECTION 4 - LIST OF PREPARERS

The following individuals contributed to the completion of this project analysis:

Name	Contribution
Jerry Conner, Core Team Leader	Analysis team leader, reviewer/editor for Environmental Assessment
Jennifer Ruyle, Range and Soils Specialist	Analysis team member; specialist input on range conditions, soil, riparian, water and air resources
Jim McDonald, Planning Specialist	Analysis team member; specialist input on heritage resources; writer/editor for Environmental Assessment
Mark Moore, Soil Technician	Analysis team member; technical input on soil conditions
Josh Taiz, Wildlife Biologist	Analysis team member; specialist input on wildlife (incl. Biological Assessment for TE&S species)
Chuck Duncan, Safford District Range Staff	Coordinated with permittees, provided resource data
Kathy Makansi, Archaeologist	Specialist input on heritage resources
Ron Senn, Planning Staff Officer	Overall management of Environmental Assessment process
Carol Boyd, Rangeland Management Specialist	Provided economic data and input on range management
Carrie Templin, Safford District Public Affairs Specialist	Provided input on recreation use
Genice Froehlich, Safford District Wildlife Biologist	Specialist input on wildlife and fish

OTHER CONTRIBUTORS

Name	Contribution
Joan Scott, Arizona Game & Fish Dept.	Participated with analysis team; provided comments on utilization

SECTION 5 - CONSULTATION WITH OTHERS

Public participation in the Veach, Gillespie and Grant Creek Allotment planning effort has occurred throughout the analysis process. A general scoping letter was mailed on April 16 to 59 individuals and organizations. Responses were received from May 18 to June 18. The responses, and additional data collected during the analysis process, resulted in the identification of one additional planning issues (Issue 4, grazing effects on the potential development of a wetland in the Cienega Pasture), and also resulted in the modification of one issue (see Section 1.E). A 30-day comment period will be provided for public review of this Environmental Assessment.

SECTION 6 - GLOSSARY

Animal Month: A month's tenure on the range by one animal. In the case of the Veach, Gillespie and Grant Creek Allotments, one cow/calf pair equals one animal month, as the un-weaned calves do not directly consume range resources.

Best Management Practices (BMPs): Practices determined by the Arizona Department of Environmental Quality to be the most effective and practicable means of preventing or reducing pollution generated by non-point sources to a level compatible with water quality goals. In the case of grazing, these include preparation of annual operating plans, monitoring, techniques to achieve proper distribution, and other practices.

Grazing Capability: A qualitative expression of the ability of a land area to support grazing on a sustained-yield basis, and the optimum use of that land area by grazing cattle. In the Veach, Gillespie and Grant Creek Allotments, slopes above 40% are not capable for grazing and have no capacity assigned, even though light livestock use may occur in these areas.

Grazing Suitability: A determination of whether livestock grazing is an appropriate use of capable rangeland, made during the Forest planning process and not during project-level analysis.

Rangeland Condition: Rangeland condition is a subjective expression of the status or health of the vegetation and soil relative to their combined potential to produce a sound and stable biotic community. Soundness and stability are determined through analysis of composition, density and vigor of the vegetation and physical characteristics of the soil.

Riparian Condition: - The following standards must be met in order for the area to be rated as satisfactory:

- 80% of natural bank protection is present
- 80% of natural shade over water is present in fish-bearing streams
- Composition of sand, silt and clay is within 20% of natural levels in fish-bearing streams
- 60% or more of the woody stems are in three or more riparian tree species
- At least three age classes of riparian woody plants are present, with at least 10% of the woody plant cover in sprouts, seedlings, and saplings of riparian species
- 60% of natural shrub and tree crown cover is present
- 60% of natural shade over land surfaces is present

Soil Condition: An evaluation of soil quality based on an interpretation of factors that affect vital soil functions. Ecological land units are assigned a soil condition category that is an indication of the status of soil functions. Soil condition categories reflect soil disturbances resulting from both planned and unplanned events. Following is a brief description of each soil condition category:

a. *Satisfactory* - Indicators signify that soil function is being sustained and soil is functioning properly and normally. The ability of soil to maintain resource values and sustain outputs is high.

b. *Impaired* - Indicators signify a reduction of soil function. The ability of soil to function properly has been reduced and/or there exists an increased vulnerability to degradation.

c. *Unsatisfactory* - indicators signify that loss of soil function has occurred. Degradation of vital soil functions result in the inability of soil to maintain resource values, sustain outputs, and recover from impacts.

Soil Quality: The capacity of the soil to function within ecosystem boundaries to sustain biological productivity, maintain environmental quality, and promote plant and animal health.

Stream Condition (Proper Functioning Condition):

a. *Functional:* - riparian-wetland areas where there is adequate vegetation, landform, or large woody debris to:

- Dissipate stream energy associated with high waterflow, thereby reducing erosion and improving water quality;
- Filter sediment, capture bedload, and aid floodplain development;
- Improve flood-water retention and ground-water recharge;
- Develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses;
- Support greater biodiversity.

b. *Functional-at risk:* - riparian-wetland areas that are in functional condition but an existing soil, water or vegetation attribute makes them susceptible to degradation.

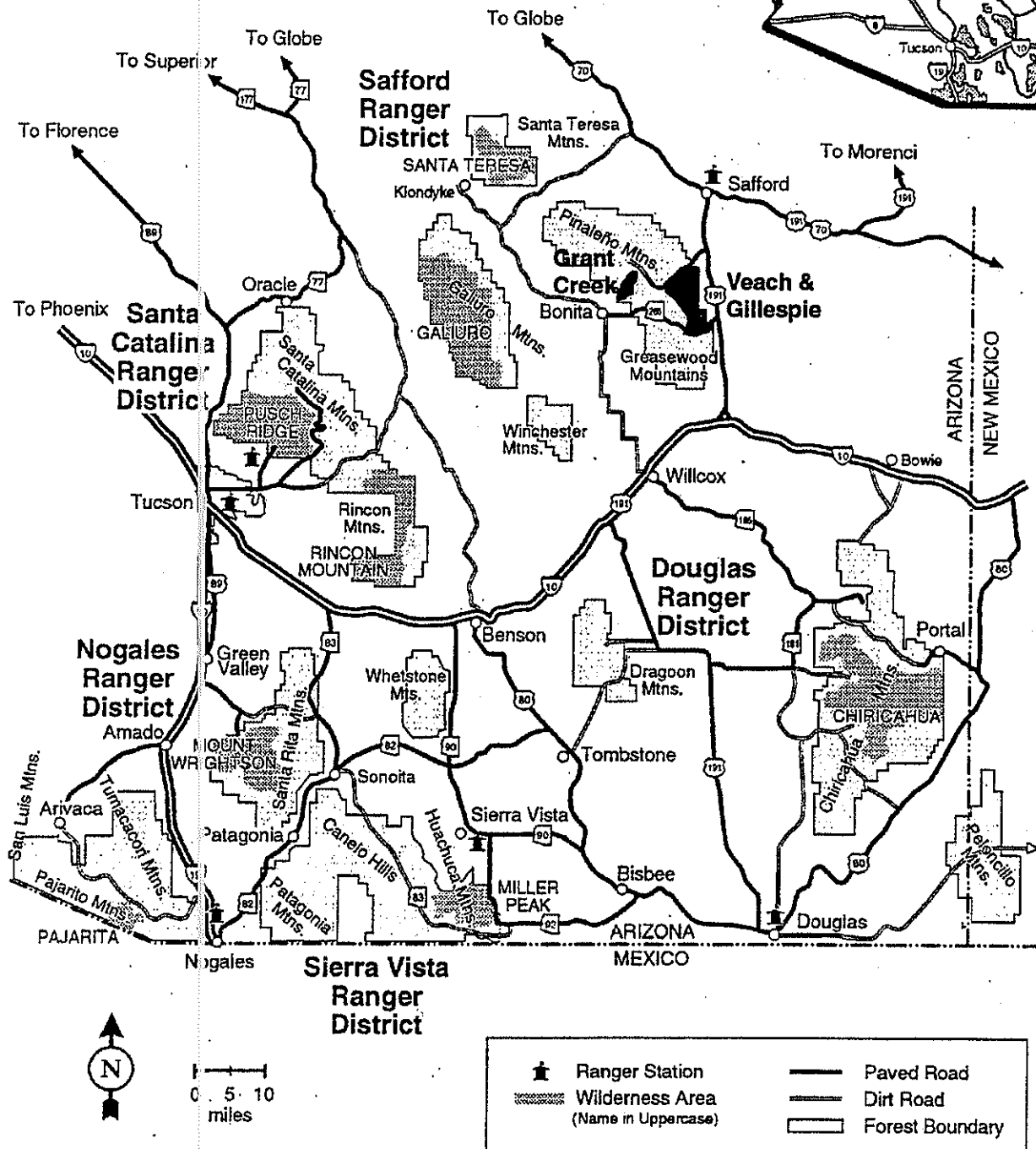
c. *Nonfunctional:* - riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to meet the criteria listed for functional.

Water Quality Limited: A water body that does not maintain surface water quality standards for its designated uses, and neither existing technology nor permit controls is sufficient to maintain water quality standards. In the case of water bodies within the project area, designated uses include aquatic and wildlife, partial body contact (non-swimming recreation), and agricultural livestock watering.

Coronado National Forest

Santa Catalina, Douglas, Nogales,
Safford, and Sierra Vista Ranger Districts

Location Map: Veatch, Gillespie & Grant Creek Allotments



Map No. 2a
Existing Gillespie, Grant Creek & Veach Allotments
Range Capability

T.8S R.24E

T.9S R.24E

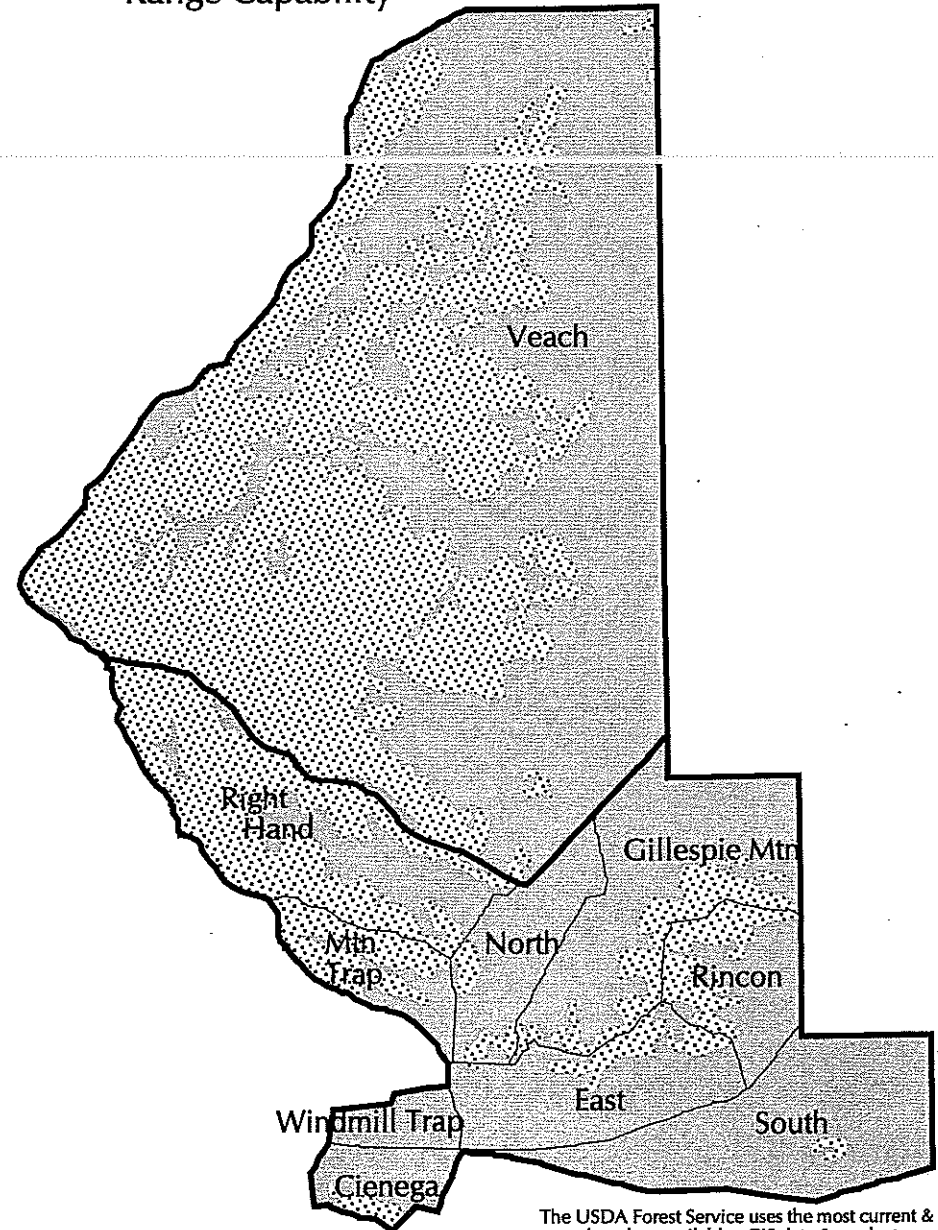
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T.10S R.24E

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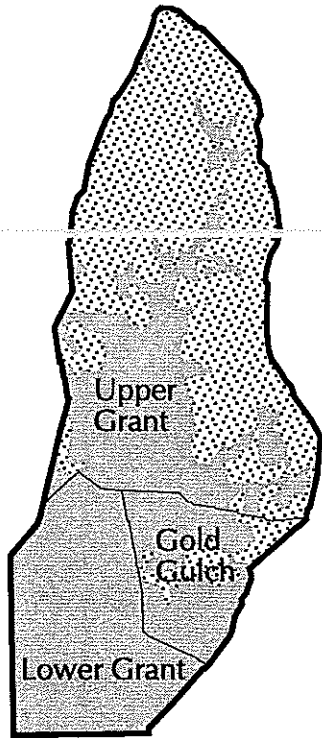
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- Pasture Boundaries
- Allotment Boundaries
- Capability
- capable
- not capable

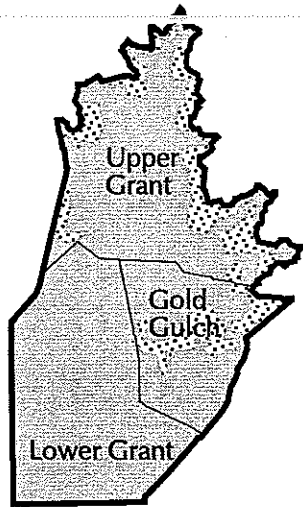
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Map No. 2b
Proposed Gillespie, Grant Creek & Veach Allotments
Range Capability

T.8S R.24E

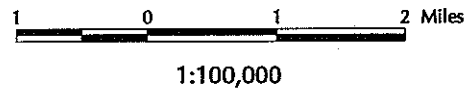
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T.9S R.24E

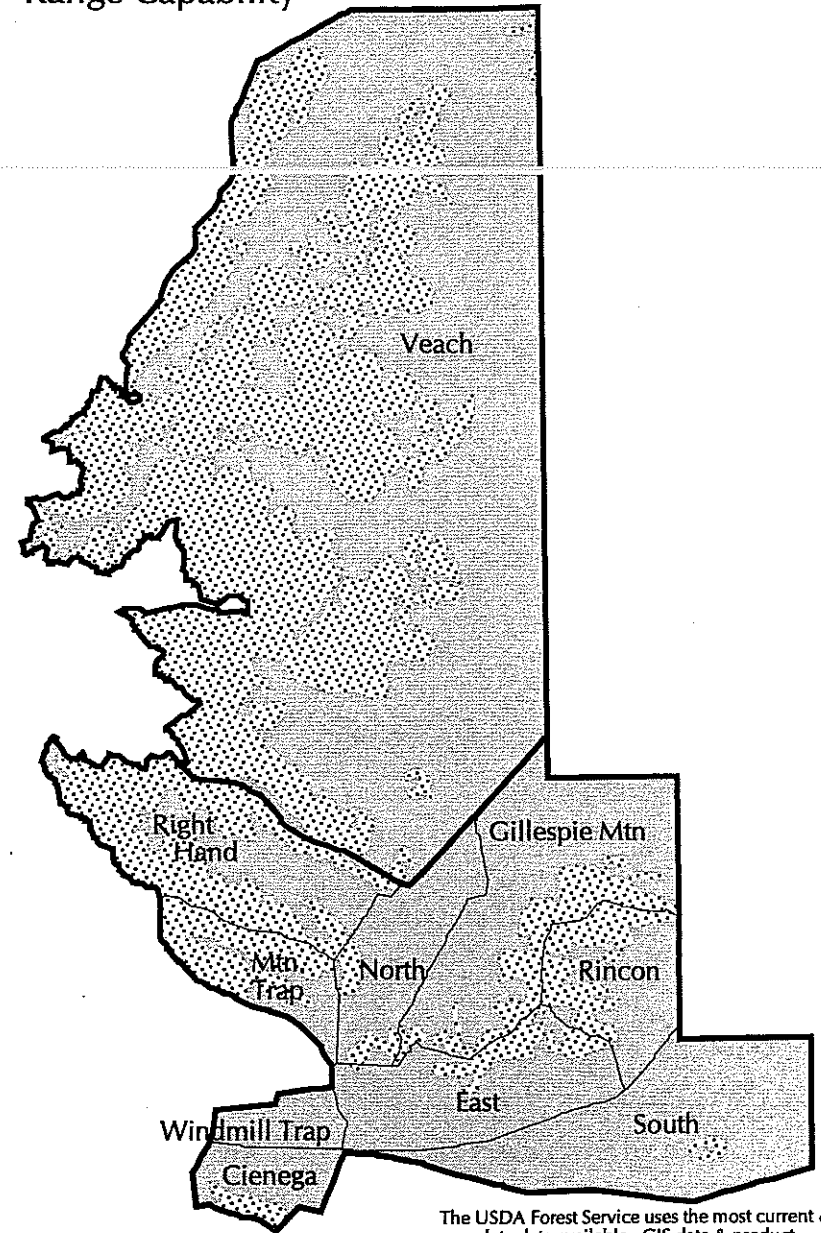
T.10S R.24E

Pasture Boundaries
Allotment Boundaries
Capability
capable
not capable



T.10S R.24E

T.10S R.25E

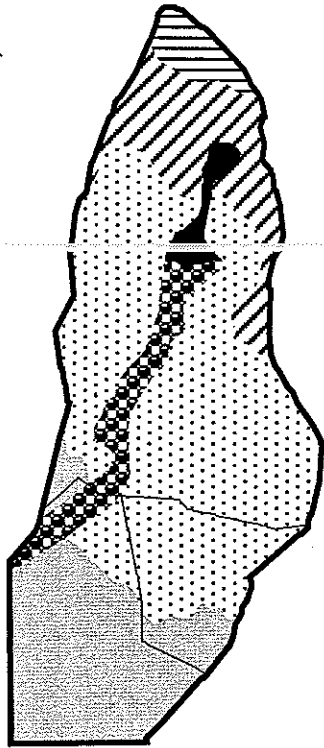


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Map No. 3a
Existing Gillespie, Grant Creek & Veach Allotments
Vegetation

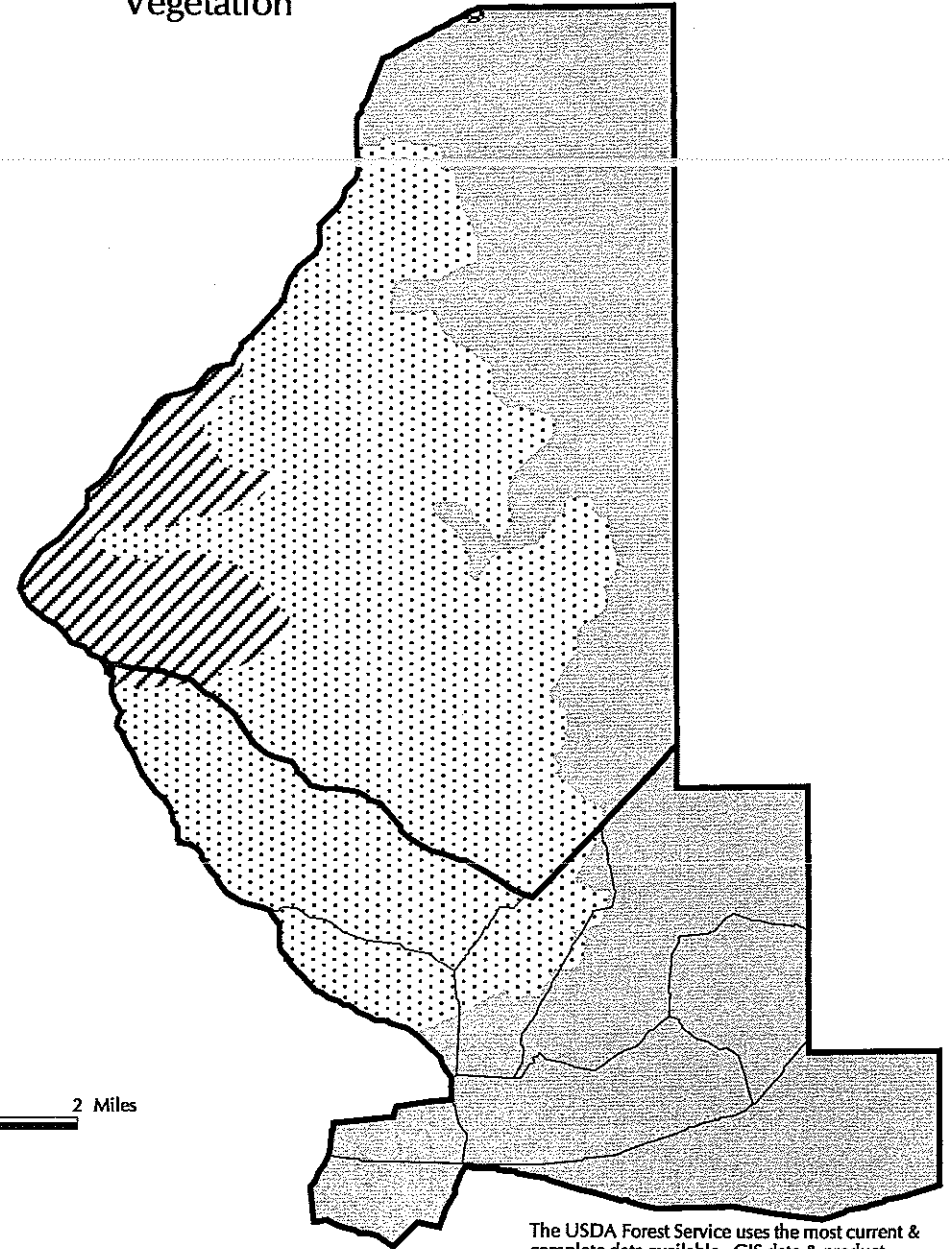
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T.9S R.24E

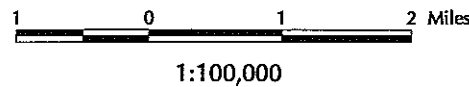


T.9S R.24E

T.10S R.24E



- Pasture Boundaries
- Allotment Boundaries
- Vegetation**
- Desert Grassland
- Broadleaf Woodland (Evergreen)
- Coniferous Forest (transition)
- Coniferous Forest (mixed-conifer)
- Deciduous Riparian
- Coniferous Riparian



T.10S R.24E

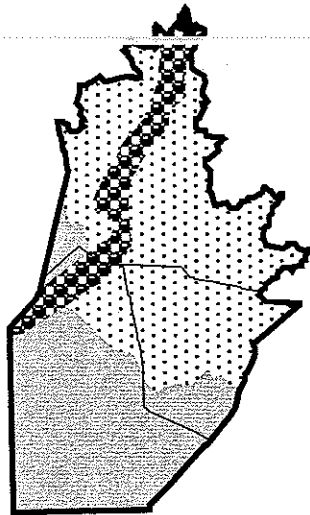
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Map No. 3b
Proposed Gillespie, Grant Creek & Veach Allotments
Vegetation

T.8S R.24E

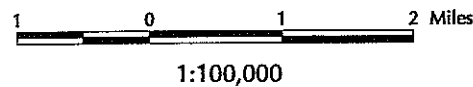
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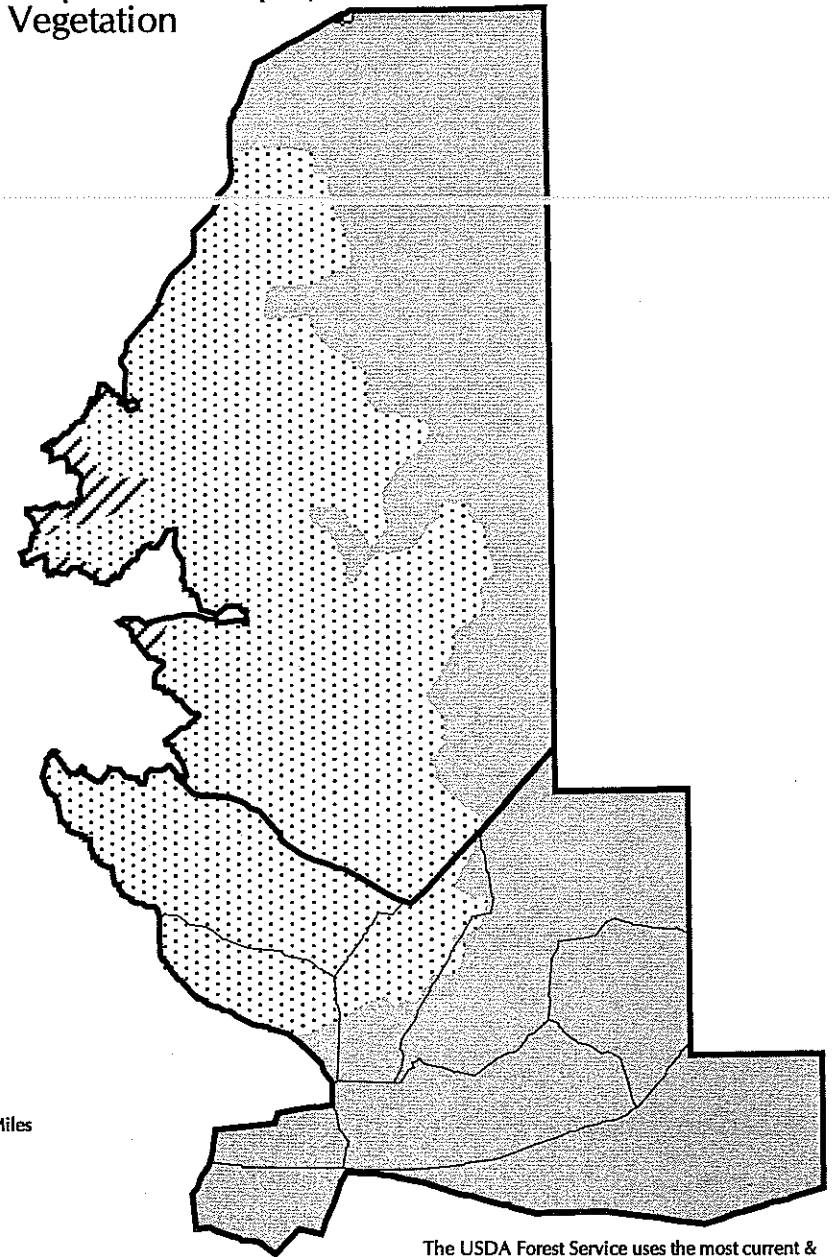
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- Pasture Boundaries
Allotment Boundaries
- Vegetation
- Desert Grassland
 - Broadleaf Woodland (Evergreen)
 - Coniferous Forest (transition)
 - Deciduous Riparian
 - Coniferous Riparian



T.10S R.24E

T.10S R.25E



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Map No. 4a
Existing Gillespie, Grant Creek & Veach Allotments
Range Condition/Trend

T.8S R.24E

T.9S R.24E

T.9S R.24E

T.10S R.24E

T.10S R.24E

T.10S R.25E

-  Pasture Boundaries
-  Allotment Boundaries
- Range Condition/Trend
-  high upward
-  mod. high upward
-  mod. high static
-  mod. low upward
-  mod. low downward
-  low upward

1 0 1 2 Miles

1:100,000

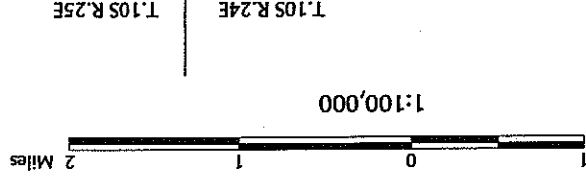
The USDA Forest Service uses the most current & complete data available. GIS data & product accuracy may vary. Using GIS products for purposes other than those for which they were intended may yield inaccurate or misleading results. The USDA Forest Service reserves the right to correct, update, modify, or replace GIS products without notification. Prepared 11/30/00 tla

Map No. 4b Proposed Gillespie, Grant Creek & Veatch Allotments Range Condition/Trend

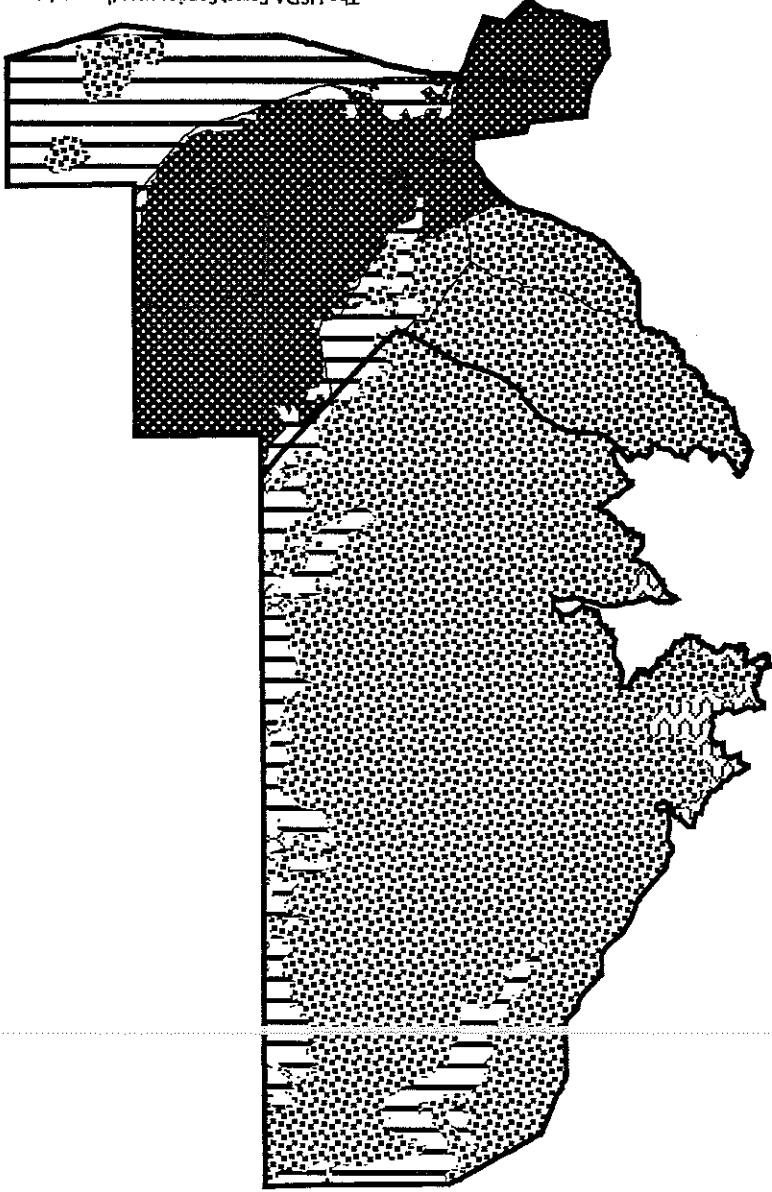
T.85 R.24E
T.95 R.24E



- Pasture Boundaries
- Allotment Boundaries
- Range Condition/Trend
 - high upward
 - mod. high upward
 - mod. high static
 - mod. low upward
 - mod. low downward
 - low upward



T.95 R.24E
T.105 R.24E



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Map No. 5 Gillespie, Grant Creek & Veach Allotment Improvements

T.8S R.24E

T.9S R.24E

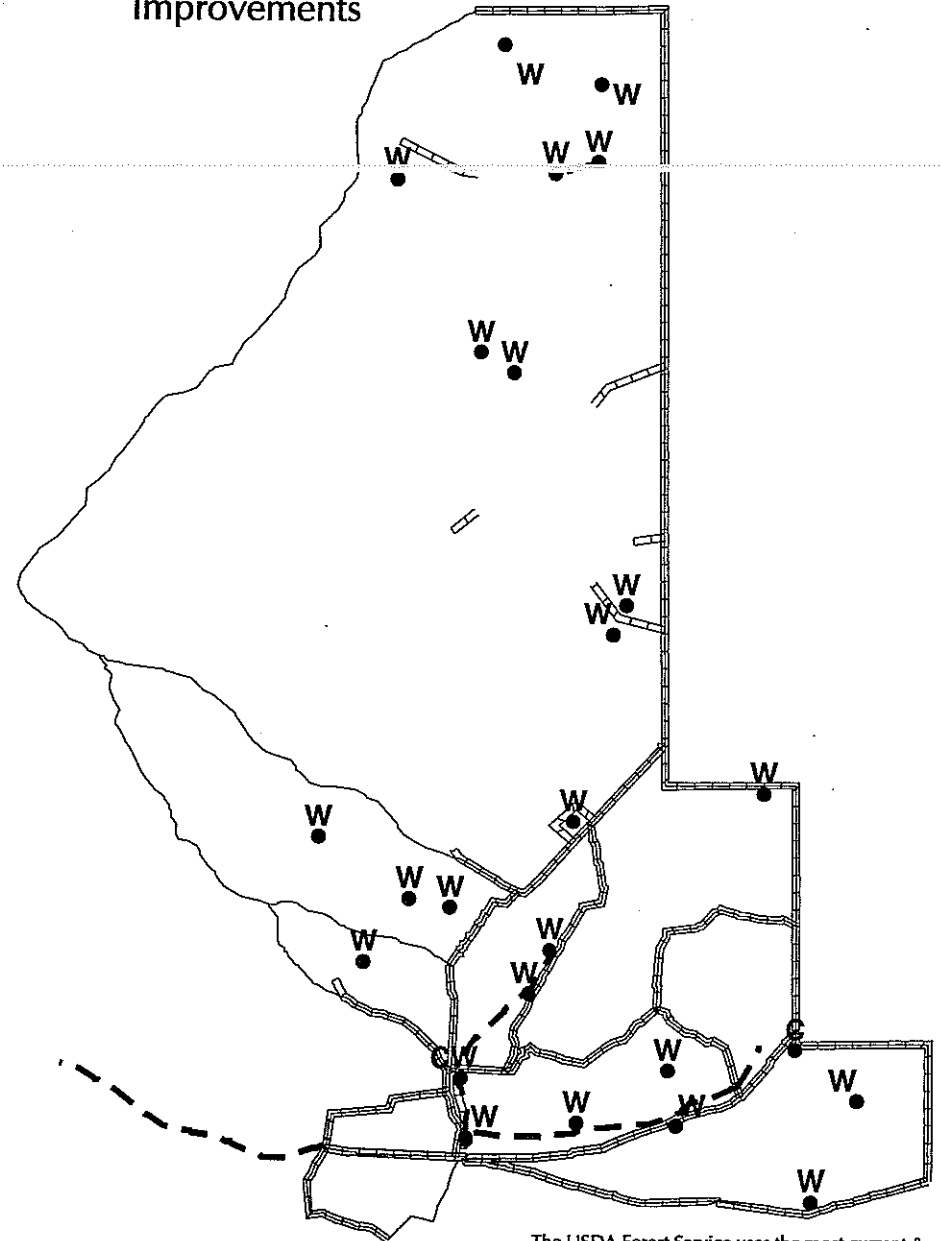
T.9S R.24E

T.10S R.24E

1:100,000

T.10S R.24E

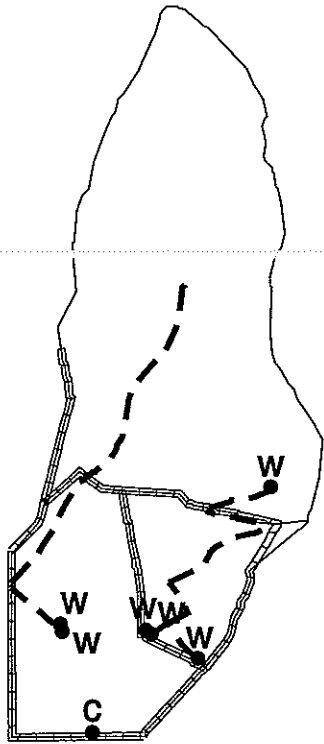
T.10S R.25E



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- Improvements
- c = corral
 - w = water source
 - ▤ Fences
 - ▤ Pipelines
 - ▤ Proposed pipeline
 - ▤ pipeline

1 0 1 2 Miles



Map No. 6a
Existing Gillespie, Grant Creek & Veach Allotment
Soil Condition

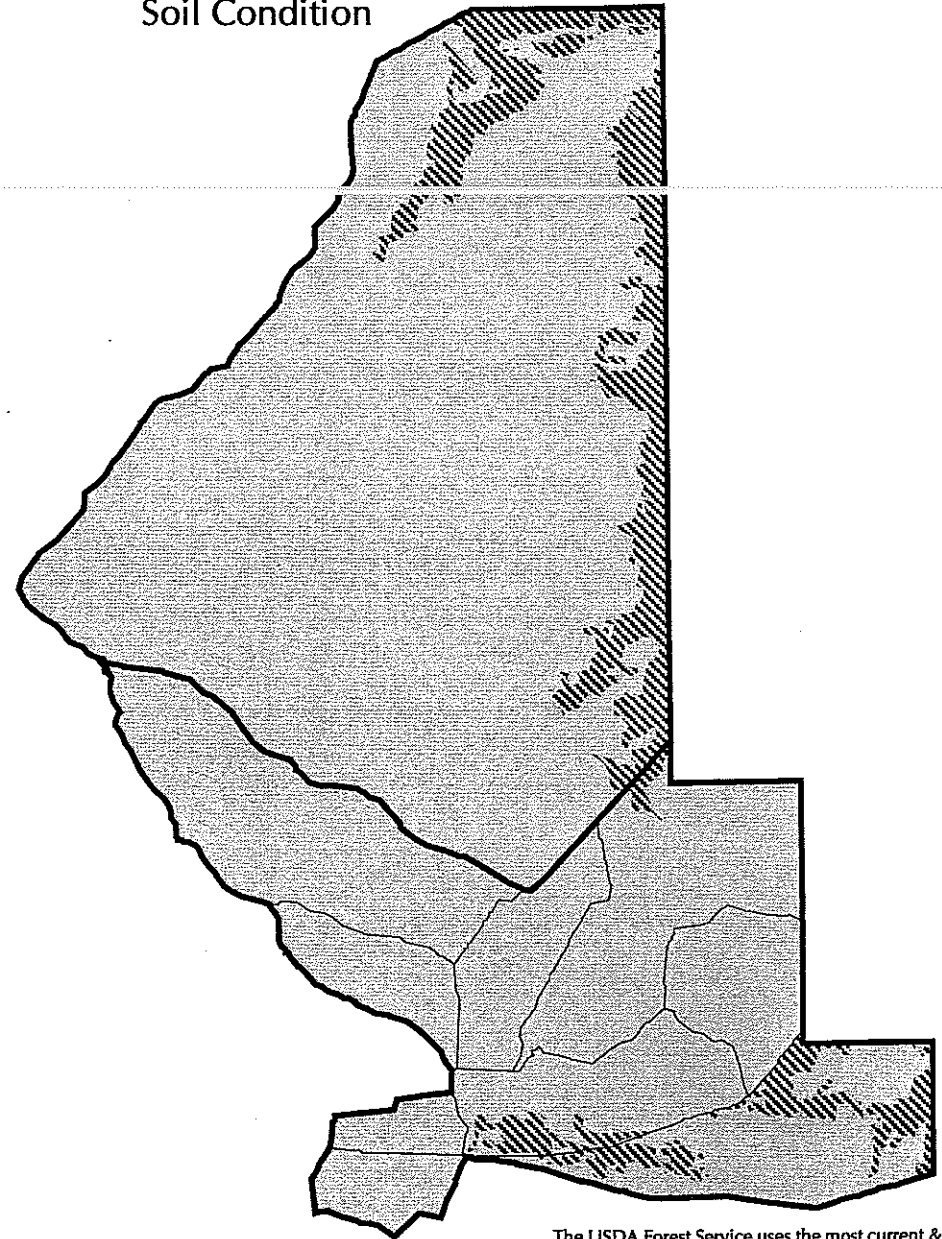
T.8S R.24E

T.9S R.24E



T.9S R.24E

T.10S R.24E



1:100,000

T.10S R.24E

T.10S R.25E

Pasture Boundaries
 Allotment Boundaries
 Soil Condition
 satisfactory
 impaired

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Map No. 6b
Proposed Gillespie, Grant Creek & Veach Allotment
Soil Condition

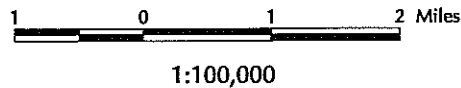
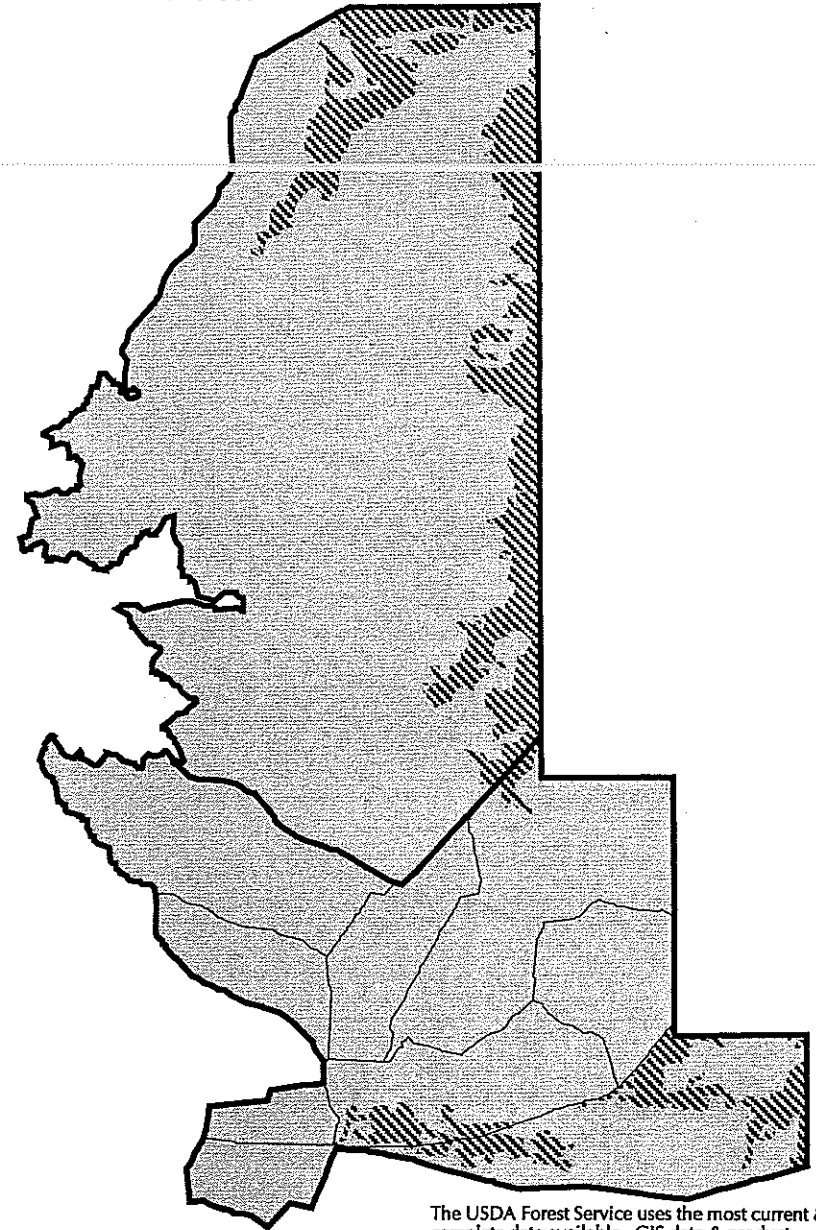
T.8S R.24E

T.9S R.24E



T.9S R.24E

T.10S R.24E



Pasture Boundaries
Allotment Boundaries
Soil Condition
satisfactory
impaired

T.10S R.24E

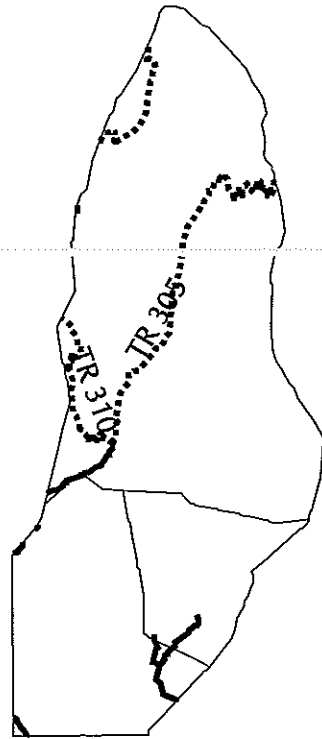
T.10S R.25E

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Map No. 7 Gillespie, Grant Creek & Veach Allotment Roads and Trails

T.8S R.24E

T.9S R.24E



T.9S R.24E

T.10S R.24E

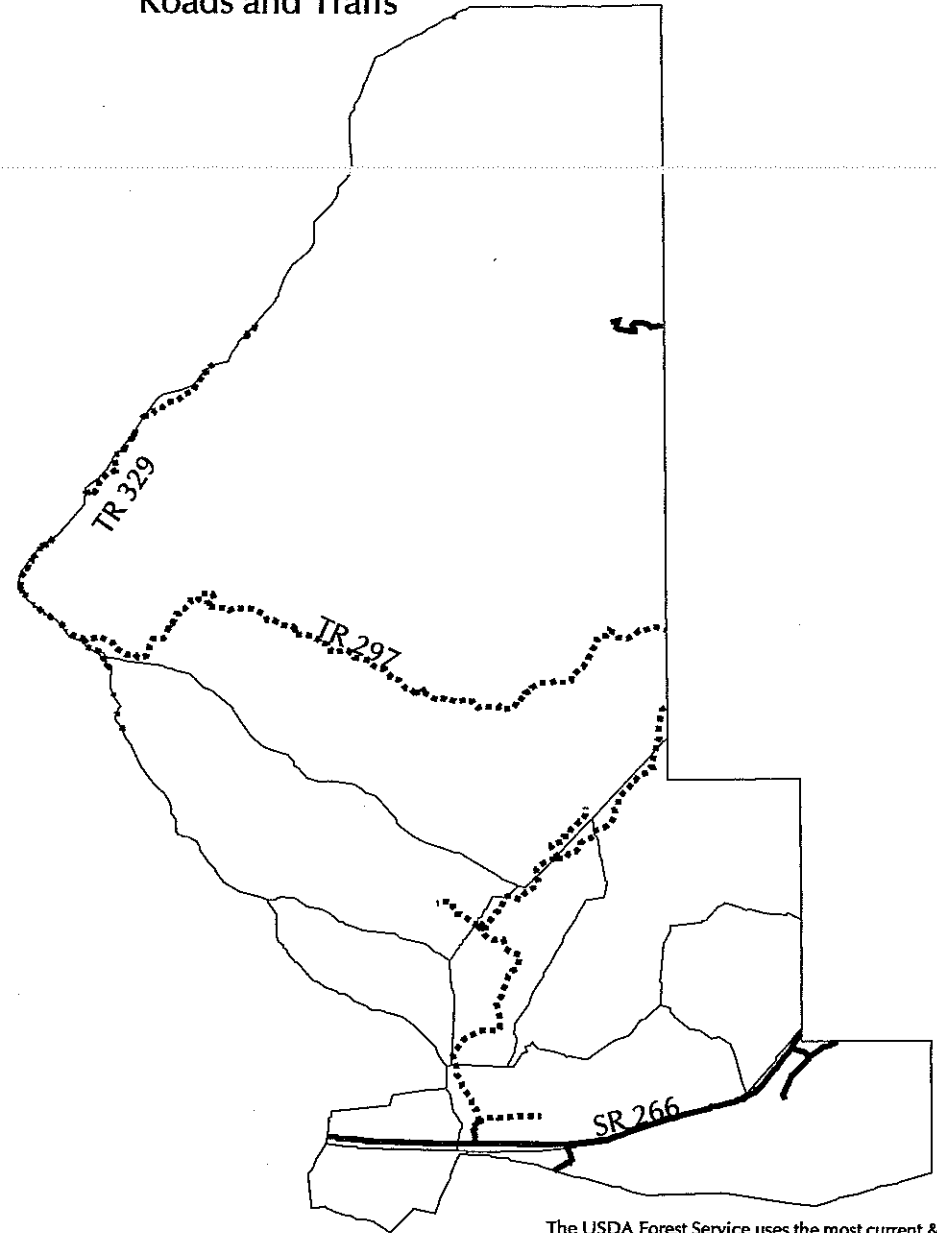
1 0 1 2 Miles

1:100,000

Pasture Boundaries
 Roads and Trails
 Roads
 Trails

T.10S R.24E

T.10S R.25E



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