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Environmental Assessment

Fairchild, Graves, Outlaw Mountain, Skeleton Canyon, Deer Creek, Skull Canyon and Juniper Basin Allotments

**Douglas Ranger District, Coronado National Forest
Cochise County, Arizona and Hidalgo County, New Mexico**

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1. PURPOSE AND NEED

Background

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and one alternative (No Action). Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Coronado National Forest Supervisor's Office in Tucson, Arizona. Throughout this EA, references to supporting documentation are shown in parentheses. For example, a reference "(PR 17)" would indicate that a specific passage in the EA is linked to information contained in document No. 17 in the project record.

Purpose and Need for Action

The Fairchild, Graves, Outlaw Mountain, Skeleton Canyon, Deer Creek, Skull Canyon and Juniper Basin allotments (collectively referred to as the North Peloncillo Allotments) contain lands identified as suitable for domestic livestock grazing in the Coronado National Forest Land and Resource Management Plan (Forest Plan). Where consistent with the goals, objectives, standards and guidelines of forest plans, it is Forest Service policy to make forage from lands suitable for grazing available to qualified livestock operators¹. The purpose of the proposed action is to authorize livestock grazing consistent with Forest Service policy and in a manner that maintains or improves project area resource conditions and achieves the objectives and desired conditions described in the Coronado National Forest Plan. The analysis and authorization are needed here and now because:

- The Rescission Act (*P.L. 104-19, 1995*) requires each National Forest System unit to establish and adhere to a schedule for the completion of NEPA analysis and decisions on all allotments for which such analysis is needed. The Coronado National Forest's schedule requires all analyses to be completed by 2008. The North Peloncillo allotments require NEPA analysis in order to comply with the Rescission Act.
- There is a need to formally incorporate additional flexibility into the management of the allotments in order to allow the Forest Service and individual grazing permit holders to be able to adapt management to changing resource conditions or management objectives, and to comply with Forest Service Policy (*FSH 2209.13 Chapter 90*).

¹ Authority to manage National Forest System (NFS) rangeland resources is derived from laws enacted by Congress that authorize the Secretary of Agriculture to administer NFS lands and issue necessary regulations. Summaries of these laws and regulations are found in the Forest Service Manual (FSM) Chapter 2201. Forest Service objectives and policies for rangeland management are found in FSM 2202 and 2203.

- Additional water sources are necessary to improve livestock distribution and improve the reliability of some pastures.

Existing Conditions

The project area includes seven grazing allotments located in the northern portion of the Peloncillo Mountains on the Arizona-New Mexico border (Figures 1 and 2). The Peloncillo Mountains are the eastern-most mountain range in the Coronado National Forest and part of an archipelago of “sky islands” (McGlaughlin 1995) linking western North America with the tropics of Mexico. The mountains are well known for their high diversity of topography, wildlife and plants. Dominant native vegetation consists of oak woodland and chaparral at higher elevations and semi-desert grassland at lower sites near the base of the mountain range. Elevations range generally from 5,000 to 6,000 feet.

Forest Service monitoring data indicate that resource conditions on the allotments either meet or are satisfactorily moving toward achievement of the objectives of the Forest Plan.² Uplands are in generally good to excellent ecological condition with stable or increasing watershed cover; soils are 99% satisfactory and riparian conditions are good. The allotments are managed in compliance with the Forest Plan standards and guidelines. Current allotment management practices and management issues are briefly summarized below, by allotment. Utilization monitoring and production/utilization studies indicate that current permitted use is balanced with capacity. On nearly all of the allotments, drought conditions over the past ten years have led to reductions in use, primarily as a result of insufficient water during dry years.

The **Skeleton and Fairchild allotments** are managed as one unit. The current permit is for 272 mature cows from October 1 to March 15 (1,496 AUMs). Typically, cattle are pushed into upper elevations of the Fairchild allotment at the beginning of the grazing season and allowed to drift down to the north as the season progresses. Monitoring records indicate that the lack of reliable water and fencing makes it difficult to maintain proper distribution, resulting in heavier than desirable use in lower Skeleton Canyon. Four monitoring clusters were evaluated in 2007. Ecological condition ranges from fair to excellent (PR 16, 20). Average stocking on both allotments combined is 1,100 AUMs.

The **Graves allotment** is currently permitted for 14 cow/calf pairs yearlong. The allotment is relatively small and is managed as part of a larger pasture comprised of non-forest acreage. Therefore, use is permitted under an on/off permit. Cattle spend little time on the allotment because there are no reliable waters. One monitoring cluster is located on the allotment. Rangeland vegetation condition was assessed in 2007 and condition was determined to be excellent.

The **Outlaw Mountain allotment** is permitted for 33 mature cows yearlong. The allotment consists of a single large pasture. There is only one dependable water source, and therefore, cattle are moved off of the forest and placed on the permittee’s private land during some portion of each year. As a result, use is often light and restricted to a

² Monitoring methodologies and detailed information on resource condition are described in Chapter 3 of this EA by resource. Complete records of monitoring are contained in the project record on file at the Coronado National Forest Supervisor’s Office.

relatively small area. Monitoring results from 2007 (one site) indicate excellent condition (PR 21).

The **Deer Creek allotment** is permitted for 276 cow/calf pairs from November 1 to April 30. The allotment is divided into five pastures. Typically, cattle are separated into the five pastures where they remain for the entire season. The allotment is rested during the summer growing season. Monitoring data collected in 2007 indicate that all sites are in good to excellent condition (PR 18). A production and utilization study completed in 2007 (PR 15) indicates that permitted use is within capacity. The primary issue identified for this allotment is the lack of reliable waters in dry years. Actual use for the past ten years has fluctuated from near full capacity to non-use, averaging 1,169 AUMs.

The **Juniper Basin allotment** is permitted for 125 cow/calf pairs from November 1 to April 30. There are three pastures. When water is abundant, cattle are rotated through the three pastures over the course of the grazing season. During dry years, cattle are spread throughout all three pastures. Three monitoring clusters were read in 2007, and were found to be in good to excellent condition (PR 19). Reliable water is the limiting factor on the allotment, and this contributes to poor cattle distribution in dry years. A production and utilization study completed in 2007 (PR 13) indicates that permitted use is within capacity. Average stocking over the past ten years is 704 AUMs, reflecting reduced use during drought years.

The **Skull Canyon allotment** is a small allotment permitted for seven cattle yearlong. There is no boundary fence and no water on the forest. Due to this, the allotment receives little use. The allotment is managed as part of a larger pasture off of the forest comprised of private land, so use is permitted under an on/off permit³.

Table 1. Allotment size and permitted use: North Peloncillo Mountains Allotments. Permitted use is shown in both numbers of cattle and animal unit months (AUMs) for comparison with the proposed action described in Chapter 2.

Allotment	Total Acres	Capable Acres ⁴	Permitted Use	Permitted Use (AUMs)
Skeleton/Fairchild	7,037	3,439	272 cows 10/1-3/15	1496
Graves	471	291	14 cow/calf pairs yearlong	222
Outlaw Mountain	2,178	1,989	33 cows yearlong	396
Deer Creek	4,863	2,609	276 cow/calf pairs (11/1-4/30)	2,186
Juniper Basin	3,326	2,601	125 cow/calf pairs (11/1-4/30)	990
Skull Canyon	1,111	75	7 cow/calf pairs yearlong	111

Management Direction

The Coronado Forest Plan (pages 9-11) identifies the following goals for the range, wildlife, soil, water and lands programs on the Forest:

³ Permits with on/off provisions are issued when a portion of the logical grazing area contains both National Forest Service lands and lands controlled by the permit holder. The intent is to promote efficient use of intermingled ownership.

⁴ Capable acres are defined as suitable rangelands under 40% slope capable of producing 100 pounds or more of dry forage per year.

- To restore rangeland to at least moderately high ecological condition (70% to 75% of potential production, fair range condition) with stable soil and a static to upward trend.
- Produce livestock products consistent with other resources and uses.
- Eliminate grazing from areas not capable of supporting livestock without significant detriment to range or other resources.
- Balance permitted grazing use with grazing capacity.
- Provide habitat for wildlife populations consistent with the goals outlined in the Arizona and New Mexico Department of Game and Fish Comprehensive Plans and consistent with other resource values.
- Provide for ecosystem diversity by at least maintaining viable populations of all native and non-native wildlife, fish and plant species through improved habitat management.
- Improve the habitat of and protection for local populations of Threatened and Endangered species to meet the goals of the Endangered Species Act.
- Provide a favorable flow of water in quantity and quality for off-forest users by improving or maintaining all watersheds to a satisfactory or higher level.
- Allow the use of available National Forest lands for appropriate public or private interests consistent with National Forest Policies.

The North Peloncillo allotments include lands designated as Management Areas 1, 4 and 7 in the Forest Plan (Figure 4). Management emphasis for these areas is described below.

Management Area (MA) 1 includes steep, rugged lands that are managed for visual resources and semi-primitive dispersed recreation (Forest Plan p. 47). Slopes are generally in excess of 40% and sites included in this management area are generally considered unsuited for livestock grazing. Range management standards and guidelines call for no assigned permitted use for livestock. Upper elevations on Outlaw Mountain are designated as MA1.

Management Area (MA) 4 comprises the majority of the project area. These lands include a variety of vegetation types on lands with slopes of less than 40%. They are generally considered capable and suitable for livestock grazing. Management emphasis is on a “sustained harvest of livestock forage and fuelwood while maintaining or improving game animal habitat” (Forest Plan p. 62).

Management Area (MA) 7A includes lands that have been “identified as supporting flora and fauna associations that are unique enough to require special management practices.” Within the project area, this designation includes riparian areas. Emphasis is placed on managing these areas to benefit unique wildlife or vegetative species while producing livestock forage and fuelwood on a sustained basis (Forest Plan p. 67). Skeleton Canyon and South Deer Creek fall within this designation.

Desired Conditions

Based on Forest Plan guidance and site-specific knowledge of the allotments, the following objectives constitute the desired condition for the analysis area:

- Livestock stocking is consistent with annual forage production and use is monitored annually. Management controls livestock use and distribution so that sufficient herbaceous vegetation is retained to protect soils and provide herbaceous wildlife cover; zones of heavy use are minimized. Achievement will be monitored through implementation monitoring described under the proposed action.
- Ecological sites within the allotments have stable soils, functional hydrology and support functional biotic communities. All areas are at or moving toward their ecological potential. Achievement will be monitored through effectiveness monitoring described under the proposed action.
- Grasslands and woodland understories are dominated by warm season native perennial grasses and are increasing in diversity of grasses, forbs and shrubs. Achievement will be monitored through effectiveness monitoring described under the proposed action.
- Native vegetation in riparian bottoms is a diverse mix of perennial grasses, forbs, shrubs and trees. Trees and shrubs show no evidence of high-lining or heavy browsing resulting in hedging, and recruitment of riparian trees is occurring. Riparian bottoms throughout the allotments provide suitable year-round habitat for wildlife species dependant on herbaceous and canopy cover. Achievement will be monitored through implementation and effectiveness monitoring described under the proposed action and monitoring at established riparian monitoring transects.
- Areas of historic heavy livestock use have increasing ground cover and litter and stable soils. Achievement will be monitored through implementation and effectiveness monitoring described under the proposed action.
- Occupied habitats for threatened, endangered, sensitive and management indicator species are maintained or improved and recovery objectives are being met. Achievement will be monitored through surveys and occurrence records, implementation and effectiveness monitoring.
- All grazing improvements on all allotments are in proper working order and are contributing toward improved livestock distribution and pasture reliability. Achievement will be monitored through implementation monitoring and facility inspections. Management plans provide sufficient flexibility to allow management to adapt to changing resource conditions.

Proposed Action

The Douglas Ranger District proposes to continue to authorize managed grazing on the Fairchild, Graves, Outlaw Mountain, Skeleton Canyon, Deer Creek, Skull Canyon and Juniper Basin allotments. Grazing would be authorized using an adaptive management strategy. Light to moderate grazing intensities and regular growing season rest or deferment will be used to provide for grazed plant recovery, increased plant vigor and retention of sufficient vegetation to protect soils and to provide herbaceous cover for

wildlife. Existing structural range improvements would be maintained and new improvements would be built to the degree necessary to maintain or achieve management objectives. The proposed action is described in detail as *Alternative 2* in Chapter 2.

Decision Framework

The Douglas District Ranger is the official responsible for decisions regarding management of the North Peloncillo allotments. Based on the results of the NEPA analysis, the Ranger will issue a decision document or documents that include(s) a determination of the significance of the environmental effects and whether an environmental impact statement will be prepared. The decision(s) will also include a determination of consistency with the Forest Plan, National Forest Management Act, National Environmental Policy Act and applicable laws, regulations and executive orders.

If the District Ranger determines it is not necessary to prepare an environmental impact statement, the Ranger will decide whether or not livestock grazing will continue to be authorized. If grazing continues to be authorized, the Ranger will determine which management actions, mitigation measures and monitoring requirements would be prescribed in the Allotment Management Plan, including permitted number of animals, season of use, allowable utilization guidelines and the term of the permits. These decisions may be made separately for each allotment. That is, the District Ranger may decide to authorize grazing on one or more allotments, and not on others, or may select different alternatives for different allotments.

Public Involvement

The Forest met with the permittees during 2007 to identify issues and develop and refine proposed management actions on the allotments. The proposal has been listed since October 2007 on the Forest's Schedule of Proposed Actions. In January 2008, a Forest interdisciplinary team met to develop proposed actions and to identify preliminary issues, concerns and measures to carry forward into the analysis. The proposal was provided to 41 individuals, groups and other agencies for comment during scoping in March 2008 (PR 33). Using comments received during scoping (PRs 34-39) the Forest refined the list of issues and concerns to address.

In October 2008, a draft of the EA (PR 66) was provided to parties who had expressed interest in the project. The public was also notified of the opportunity to comment through a legal notice published in the *Douglas Daily Dispatch* on October 2, 2008 (PR 67). Two comment letters were received in response to this solicitation (PRs 68-69). A summary of these comments and a Forest Service response is contained in the project record at PR 70.

Issues

The Forest Service categorized and sorted public scoping comments into issues and non-issues. Issues are defined as a concern or debate about the effects of the proposal. Issues were further categorized as key issues (significant issues used to develop alternatives to the proposed action and other issues (concerns that are addressed through mitigation measures or project design). The effects analysis in Chapter 3 is built around the

identified issues and concerns. Comments not considered issues to analyze in this EA were identified as those that were: 1) outside the scope of the proposed action and thus irrelevant to the decision being made; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) conjectural and not supported by scientific or factual evidence⁵. An analysis of the issues and scoping responses is included in the project record as PR 39.

Key Issues

No issues were identified that could not be addressed through mitigation or project design modifications. Therefore, no additional alternatives were developed.

Other Issues

Other issues and concerns are identified below. These issues were used to define the scope of the analysis. Project design features and mitigation measures have been developed to address these other issues.

Wildlife – Continued grazing in the project area could result in effects to wildlife, including listed, sensitive and management indicator species and their habitats. Effects could include modification of the structure and composition of plant communities that provide habitat through selective removal of forage, disturbance during critical periods, and changes in the availability of water. Effects can be both positive and negative, depending on the timing, intensity, frequency and duration of grazing.

Soil, watershed and riparian condition – Continued grazing in the project area could affect soil condition, hydrological function and riparian areas. Effects can be both positive and negative, depending on the timing, intensity, frequency and duration of grazing. One comment (PR 36) objected to the desired condition objective to preclude hedging on riparian vegetation. However, heavy browsing sufficient to cause hedging of woody plants would not meet Forest Plan standards for riparian condition or the purpose and need.

Upland vegetation – Continued grazing on the allotments could lead to changes in the composition, structure and vigor of upland vegetation and could affect the condition and trend of rangeland resources.

Additional environmental considerations in this EA include potential effects to **air quality, water quality and quantity, heritage (archeological and historical) resources and economics**. Effects on these resources are evaluated through specialists' reports and consultation with tribes and regulatory agencies. Management Practices (see proposed action) have been incorporated into the proposed action to avoid or minimize effects to these resources.

⁵ The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..."

2 - ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the management of the North Peloncillo allotments. This section presents the alternatives in comparative form, in order to define the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Mitigation and monitoring measures incorporated into the alternatives are also described. Because monitoring indicates that the allotments currently meet or are moving toward Forest Plan objectives, and because no key issues were identified that could not be addressed through the design of the proposed action, only two alternatives were analyzed in detail.

Alternatives

Alternative 1

No Action

Under this alternative, grazing would not be authorized and use of the allotments by domestic livestock would be discontinued. Permittees would be given one year from the date of the decision to remove livestock from the allotments. Existing structural improvements would remain in place but would not be maintained. Improvements contributing to resource protection or enhancement, such as water developments important for wildlife, would be maintained where feasible using other program funds. Periodic inspection of structural improvements would be used to determine whether maintenance or removal is needed. Removal or maintenance of improvements would be authorized by a separate decision. Where necessary, maintenance of allotment boundary fences would be reassigned to adjacent permittees with the understanding that livestock are to be kept off of the allotment.

Alternative 2

The Proposed Action

The following proposed action has been developed to meet the purpose and need of the project. The proposed action consists of four components: 1) authorization, 2) improvements, 3) management practices, and 4) monitoring. In keeping with the purpose and need, the proposed action incorporates an adaptive management strategy described on page 15, below in order to provide sufficient flexibility to adapt management to changing circumstances.

1. Authorization

Grazing would be authorized on the allotments under the following terms and conditions.

- **Duration and timing of grazing.** Grazing use on the Skeleton/Fairchild, Outlaw Mountain, Deer Creek and Juniper Basin allotments would be authorized during the winter dormant season (generally October 1 to April 30, but specific dates

would vary by allotment – see below). Use on the Graves and Skull Canyon allotments would be authorized year-long. Although authorized year-long, grazing may be limited to seasonal use on these allotments in most years. Grazing management would be designed to insure that pastures receive annual summer growing season rest or deferment in order to provide for grazed plant recovery. The sequence and timing of pasture moves will be based on monitoring of range readiness, ecological condition, water availability and utilization.

- **Intensity of grazing.** Forage utilization would be managed at a level corresponding to light to moderate intensity (30-45%)⁶ in order to provide for grazed plant recovery, increased plant vigor, and retention of herbaceous litter to protect soils and provide forage and herbaceous cover for wildlife. Consistent patterns of utilization in excess of 45% of key species in key areas would be used as a basis to modify management practices or take administrative actions necessary to reduce utilization in subsequent grazing seasons.

Administrative actions required to implement the decision.

Following the NEPA-based decision to authorize grazing under the terms and conditions identified above, the following actions would be necessary to implement the decision.

Grazing Permits. New ten-year term grazing permits would be issued for each allotment for the numbers and under the terms described below. The term grazing permit will identify the number, kind and class of livestock authorized and the season of use as required by Forest Service policy (FSM 2231.11). Permits will also identify the total AUMs⁷ authorized for each permit. The number and class of livestock would be allowed to vary depending on resource conditions and management objectives. Resource conditions that would affect management decision include but are not limited to

⁶ Based on review of numerous grazing intensity studies, Holechek (2004) identifies light to moderate grazing as 32-43 percent average use of primary forage species. These averages are based on pasture-wide utilization averaged over time. The Forest Service monitors utilization based on the use of key forage species in key areas. Key areas are selected to be representative of management effectiveness over the entire pasture. For the purposes of monitoring, an annual use guideline of 35-45 percent of key species in key areas will be used to monitor use in all pastures, which, combined with growing season rest or deferment, should insure pasture-wide *average* use of less than 45 percent.

⁷ An animal unit month (AUM) is a measure of the amount of *forage* required by a 1000 lb cow or its equivalent for one month based on a daily allowance of 26 lbs. of dry forage per day (Society for Range Management 1998, USFS 1997). It is not synonymous with animal month (or head-month), which is an expression of one month's *occupancy* of the range by an animal. The amount of forage consumed varies based on the size and class of livestock consuming the forage. In general, forage consumption increases with increasing size of the animal using the forage. A cow/calf pair will typically consume more forage than a cow without a calf; a yearling will consume less. Thus an area of rangeland with the capacity to support a certain number of mature cows will likely support relatively fewer cow/calf pairs (or bulls or other larger animals) or relatively more yearlings (or other smaller animals) over the same period of time. The concept of animal unit conversion factors is incorporated into production and utilization studies accomplished by the Forest and is useful for comparing initial capacities on allotments for different classes of livestock. With the forage requirement of a mature cow as the base (1 AUM), the Forest Service Handbook defines a cow/calf pair as 1.32 AUM and a yearling as 0.7 AUM (FSH 2209.15(28)). Ultimately, however, range capacity can be variable and stocking will be determined on an annual basis in response to actual use monitoring and current forage conditions using adaptive management.

precipitation, forage production, water availability, previous annual or seasonal utilization levels and vegetation and soil condition and trend. Annual use will not exceed the AUMs authorized or the season of use identified for the allotment. Annual adjustments would be documented and authorized in annual operating instructions. Depending on prevailing climate, resource conditions, management needs and permittee preference, actual use may be significantly less than authorized use in some years. Grazing permits would be issued within 90 days of final agency action following the NEPA decision to authorize grazing [FSH 2209.13(94) and R3 Supplement 2209.13-2007-1].

- **Skeleton/Fairchild.** 272 mature cows or equivalent for 5.5 months, October 1 to March 15, up to 1496 AUMs. The two allotments would be administratively combined to form a single allotment.
- **Graves.** 14 cow/calf pairs yearlong or equivalent, up to 222 AUMs. The on/off provisions would continue.
- **Outlaw Mountain.** 66 mature cows or equivalent for six months, November 1 to April 30, up to 396 AUMs. The season of use would change from yearlong to dormant season to allow for annual growing season rest. Total AUMs authorized would remain the same as currently permitted.
- **Deer Creek.** 276 cow/calf pairs or equivalent for six months, October 1 to April 30, up to 2,186 AUMs. The grazing season would be extended by one month into October to provide the permittee flexibility to coordinate entry into the allotment with shipping of cattle. In years when cattle go on early, they would come off early in order not to exceed six months use in any year.
- **Juniper Basin.** 125 cow/calf pairs or equivalent for six months, November 1 to April 30, up to 990 AUMs.
- **Skull.** 7 cow/calf pairs or equivalent yearlong, up to 111 AUMs. Use would continue to be incidental to grazing on adjacent non-forest lands and would be authorized under an on/off permit.

Allotment Management Plans. Consistent with Forest Service manual guidance (FSH 2209.13, 94) new allotment management plans (AMPs) would be developed for each allotment and would be incorporated into any term grazing permits issued. The AMPs will specify the goals and objectives of management, management strategies, range improvements and monitoring requirements and will incorporate an adaptive management strategy described below. The use of coordinated resource management plans (CRMPs) will be encouraged where the coordinated use of intermingled private, state and federal lands is conducive to more effective management.

Annual Operating Plans. On an annual basis, the Forest and permittees will jointly prepare annual plans, referred to as Annual Operating Instructions (AOI), prior to each grazing year. The AOI will set forth:

- The maximum permissible grazing use authorized on the allotment for the current grazing season and the numbers, class, type of livestock, and timing and duration of use.
- The planned sequence of grazing in pastures on the allotment, or the management prescriptions and monitoring that will be used to make changes.

- Structural and non-structural improvements to be constructed, reconstructed, or maintained and who is responsible for these activities.
- Allowable use or other guidelines to be applied and followed by the permittee to properly manage livestock.
- Monitoring for the current season that may include, among other things, documentation demonstrating compliance with the terms and conditions in the grazing permit, AMP and AOI.

2. Improvements

The responsibility for maintenance of range improvements is assigned to the permittee(s) in the terms and conditions of each grazing permit (FSM 2244.03). Maintenance activities include the repair of fences and water facilities, cleaning of stock ponds and other actions necessary to maintain the improvement in serviceable condition necessary to serve the purpose intended. On an annual basis, responsibilities for repair and maintenance of existing improvements will be identified in the AOI(s).

Several new structural improvements are proposed in order to improve livestock distribution and pasture reliability. These improvements have been identified as possible practices to assist in the achievement of desired conditions if management alone is not sufficient. Future monitoring may indicate that the projects are not necessary, in which case they will not be constructed. Monitoring may also indicate the need for additional improvements. In this case, the need for, and site-specific effects of, each additional improvement will be evaluated as described under *Adaptive Management*, below. Additionally, current levels of Forest Service funding are insufficient to fund all projects identified. Permittees have been notified that it may be necessary to pursue alternative sources of funding in order to accomplish identified projects.

Skeleton/Fairchild. The following improvements have been identified as necessary to keep livestock in upper reaches of the allotment and reduce use in lower elevations.

1. Construct a concrete trick tank on an exposed bedrock face with 5,000 gallon storage and trough in the NE $\frac{1}{4}$ of section 3 (T22S, R32E) near the southern portion of Skeleton Allotment. The project would cost approximately \$3,800 and would be contingent on acquisition of a water right from the state of Arizona. (FY 2010).
2. Run a pipeline from a private well to a storage (10,000+ gallons) on the top of the ridge between the Graves and Fairchild allotments. The water would then be piped from the storage to drinkers on the uplands in both the Fairchild and Skeleton portions of the allotment. The costs of these improvements are variable, but should be around \$8,000 to \$10,000 (FY 2009).
3. Construct a drift fence across South Fork Canyon in the NW $\frac{1}{4}$ of section 34, approximately $\frac{1}{2}$ mile north of Ricky's tank. The topography of the area would lend itself to require minimal fencing (FY 2009).

Graves. Additional waters have been identified to increase the year-round reliability of the allotment.

1. Run a pipeline from a private well on private land to a storage (10,000+ gallons) on the top of the ridge between the Graves and Fairchild allotments. A trough could be placed on the ridge south of Starvation tank, and also on the uplands in the allotment along with troughs on the uplands in the Fairchild/Skeleton allotment. The costs of these improvements are variable, but should be around \$8,000 to \$10,000 (FY2009).

Outlaw Mountain. Additional waters have been identified to increase the year-round reliability of the allotment.

1. A 12,000 gallon umbrella Trick Tank in southeast 1/4 of Section 20, Township 22 South, Range 32 East. Estimated cost of project would be \$6,500.
2. A 1,500 gallon umbrella Trick Tank in NW1/4 of Section 22, Township 22 South, Range 32 East. Cost of project would be about \$4,500.

Deer Creek. Additional waters are proposed to increase the reliability of the pastures in dry years. Improvements are listed in order of priority.

1. Construct two new umbrella type trick tanks with 1,500 gallon storages each. The projects would provide reliable water in uplands of Woodchopper, Upper Deer Creek and Long Canyon pastures. Estimated cost: \$6,000 each.
2. Construct two new dirt tanks in the Woodchopper Pasture. Estimated cost: \$8,000.
3. Construct one new trick tank in the upper portion of the Woodchopper Pasture. The trick tank would utilize exposed bedrock for the apron, and a 5,000 gallon storage and trough would be placed nearby. Estimated cost: \$8,000.
4. Construct one new cement dam in the Long Canyon Pasture. The project would cost an estimated \$6,000.
5. Clean the Rainbow Dams in the Rainbow Pasture. Estimated cost: \$4,000.

Juniper Basin. Additional waters are proposed to improve livestock distribution.

1. Build 5 new dirt tanks throughout the allotment. A water-lot⁸ would be built around the lower elevation tanks. Each tank would cost an estimated \$6,000 to construct.
2. Construct a cement dam in Horse Camp Draw and pipe water to a new 10,000 gallon storage and trough down the canyon. The project would cost an estimated \$7,500.
3. Construct a trick tank on the ridge north of Maddox Tank in the South Pasture. The project would consist of a fiberglass apron and 12,000 gallon storage. A trough would be located nearby. The project would cost an estimated \$8,500.
4. Construct a trick tank on the ridge top west of Juniper Tank in the North Pasture the natural rock for the apron. A 3,000 gallon storage and trough would be located nearby. The project would cost between \$5,000 – 10,000. This price would include transport of materials by helicopter.

⁸ A water lot is a fenced enclosure built around a water source to control access by grazing livestock.

3. Management Practices

To mitigate resource impacts, the following measures would be implemented. These measures have been demonstrated to be successful when used on similar projects and are considered effective at reducing environmental impacts. They are consistent with applicable Forest Plan standards and guidelines and Best Management Practices. Implementation of the mitigation measures and design criteria is intended preclude the occurrence of potentially significant environmental impacts.

Soil, Water and Vegetation – the objective is to mitigate effects of livestock grazing and facility construction through the use of Best Management Practices (FSH 2509.22) and adaptive management. Practices include, but are not limited to the following.

- Utilization of key upland herbaceous forage species in key areas would be managed to achieve the goal of light to moderate grazing as a pasture average. The objective is to protect plant vigor, provide herbaceous residue for soil protection and to increase herbage producing ability of forage plants. A utilization guideline of 30-45% use of key species in key areas will be used to achieve this objective.
- Management practices will be used to achieve proper distribution or lessen the impact on sensitive areas. Practices include herding, salting and controlling access to waters. Salt will be placed on good feed, one quarter to one half mile from waters and salting locations will be moved annually. Placement of liquid or bulk supplements will require prior approval of the District Ranger.
- No hay will be placed on Forest lands in order to minimize the introduction of weed seeds.

Wildlife – the objective is to mitigate impacts to wildlife from livestock grazing and from disturbance associated with maintenance of range facilities.

- All water developments will include wildlife access and escape ramps. Waters will be kept available to wildlife year round.
- All new and reconstructed fencing will be built to Forest Plan standards (Forest Plan, p. 35) to provide for wildlife passage through the fence. At a minimum, this will be a 4-strand fence with smooth bottom wire 16 inches off of the ground and a total height of 42 inches or less.
- Range construction projects will be designed to avoid the destruction of agaves. If impacts to agaves are unavoidable, the Forest will insure that no more than 1% of agaves within 800 meters of a project are impacted. The objective is to avoid impacts to long-nosed bat food resources.
- New range facilities will be surveyed for threatened, endangered or sensitive species prior to any ground-disturbing activities. Facilities will be designed and constructed to have no adverse effect on listed species.
- Utilization of herbaceous forage will be maintained at 45% or less in order to maintain sufficient herbaceous stubble to provide cover for Montezuma quail and other wildlife that require herbaceous cover.

- The Forest will implement the Forest's Stockpond and Aquatic Habitat Management and Maintenance Guidelines for the Chiricahua leopard frog (*Rana chiricahuensis*) (PR 57). The objectives are 1) to minimize short-term impacts to frogs while allowing maintenance activities that maintain occupied habitats, and 2) to protect shoreline and emergent vegetation and to improve water quality.

Heritage Resources – The objective is to protect heritage resources (historic and prehistoric sites) from direct or indirect impacts caused by ground-disturbing activities associated with the construction of range facilities and to monitor the effects of cattle grazing on sites to ensure that adverse effects are not occurring. These measures are consistent with the *Standard Protocol for Rangeland Management* developed pursuant to Stipulation IV.A of the *Region 3 First Amended Programmatic Agreement Regarding Historic Property Protection and Responsibilities* (PR 48). In general, these measures include the following:

- All proposed range facilities will be surveyed by qualified personnel for heritage resources prior to any ground-disturbing activities. Facilities will be built or modified to avoid impacts to sites. If unrecorded sites are discovered during the course of project implementation, activities will cease and the Forest Archeologist will be notified.
- Range facilities, if needed, will be located so as to avoid concentrations of livestock on identified heritage resource sites.
- No salting will occur within or adjacent to identified heritage sites.
- If impacts from grazing (e.g. excessive trampling, cattle rubbing against and knocking down standing features) are occurring to heritage sites, measures will be taken (e.g. fencing) to protect them.

4. Monitoring

The objective of monitoring is to determine whether management is being properly implemented and whether the actions are effective at achieving or moving toward desired conditions identified for the project area (see Chapter 1, pp. 4-5).

Effectiveness monitoring includes measurements to track the long term condition and trend of upland and riparian vegetation, soil, and watersheds. Monitoring will be done following procedures described in the Interagency Technical Reference (ITA 1996a) and the Region 3 Rangeland Analysis and Training Guide (USDA-FS 1997). These data are interpreted to determine whether management is achieving desired resource conditions, whether changes in resource condition are related to management, and to determine whether modifications in management are necessary. Effectiveness monitoring will occur at five to ten year intervals, or more frequently if deemed necessary. Examples of effectiveness monitoring include, but are not limited to dry weight rank, pace transects, pace quadrat frequency, Parker 3-step, riparian evaluations (RASES or proper functioning condition), soil and watershed condition assessments and repeat photography. Monitoring will occur at established permanent monitoring points.

Implementation monitoring will occur on an ongoing basis and may include such things as inspection reports, seasonal and annual forage utilization measurements, livestock counts and facilities inspections. Utilization measurements are made following procedures found in the Interagency Technical Reference (ITA 1996b) and with consideration of the Principles of Obtaining and Interpreting Utilization Data on Southwest Rangelands (Smith, et al 2007, PR 23).

Utilization will be monitored on key forage species, which are perennial grasses that are palatable to livestock. At a minimum monitoring will include use in key areas⁹, but may include monitoring outside of key areas. Utilization on non-grass species (forbs, shrubs and trees) may also be measured if appropriate for the site. The Douglas District Range Staff Officer and the permittees will be responsible for monitoring livestock grazing utilization. Over time, changes in resource conditions or management may result in changes in livestock use patterns. As livestock use patterns change, new key areas may be established and existing key areas may be modified or abandoned in cooperation with the permittees.

Permittees will be encouraged to participate in monitoring activities. Records of livestock numbers, movement dates and shipping records will be kept by the permittees and will be provided to the District Range Staff annually.

Adaptive Management

Adaptive management uses the documented results of management actions (monitoring) to continually modify management in order to achieve specific objectives, which are identified under *Desired Condition* in Chapter 1. Adaptive management provides the flexibility to adjust livestock numbers and the timing of grazing so that use is consistent with current productivity and is meeting management objectives. Under the adaptive management strategy proposed, the specific number of livestock authorized annually, specific dates for grazing, class of animal and modifications in pasture rotations may be administratively modified as determined to be necessary and appropriate, based on implementation and effectiveness monitoring. However, such changes will not exceed the limits for timing, intensity, duration and frequency authorized in the NEPA-based analysis and decision. Administrative changes will be documented and implemented in the AOI, AMP and/or the term grazing permit.

Adaptive management also includes monitoring and analysis to determine whether identified structural improvements are necessary or need to be modified. In the case that changing circumstances require physical improvements or management actions not disclosed or analyzed herein, further interdisciplinary review would occur. The review will consider the changed circumstances and site-specific environmental effects of the improvements in the context of the overall project. Based on the results of the interdisciplinary review, the Ranger will determine whether correction, supplementation

⁹ A key area is a portion of rangeland selected because of its location, use or grazing value as a monitoring location for grazing use, range condition and trend. Key areas are usually ¼ to 1 mile from water, located on productive soils on level to intermediate slopes where prescribed use will occur first. They are 5 acres or more in size. Properly selected key areas will reflect the overall acceptability of current management.

or revision of the EA is necessary in accordance with Forest Service Handbook direction at FSH 1909.15(18) and FSH 2209.13(96.1), or whether further analysis under NEPA is required.

Future Review of the Decision

In accordance with Forest Service Handbook direction [FSH 1909.15(18) and 2209.13(96)], an interdisciplinary review of the decision will occur within 10 years, or sooner if conditions warrant. If this review indicates that management is meeting standards and achieving desired condition, the initial management activities would be allowed to continue. If monitoring demonstrates that objectives are not being met and management options beyond the scope of the analysis are warranted, or if new information demonstrates significant effects not previously considered, a new proposed action would be developed and further analysis under NEPA will occur.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 2. Comparison of the Alternatives.

Attribute	Alternative 1	Alternative 2
National Forest Policy and Forest Plan Consistency	Consistent with Forest Plan. Not consistent with policy (FSM 2202.1, 2203.1)	Consistent with Forest Plan and policy. Consistent with standards and guidelines.
Meets purpose and need	N/A	Yes. Balances use with capacity. Provides management flexibility. Provides for necessary infrastructure.
Effect on Wildlife and Rare Plants	No Effects from grazing.	Effects mitigated. Light to moderate utilization reduces localized effects to habitats.
Effects on soil and watershed condition	No effects from grazing. Improvement in soil and watershed cover over time.	Moderate use contributes to watershed stability. Concentrations of cattle may contribute to localized soil impairment.
Effects on upland vegetation	No effects from grazing. Increasing plant cover and litter over time.	Moderate use levels and emphasis on winter use maintain satisfactory conditions.

3. ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. The section is organized by resource. Within each section, the affected environment is briefly described, followed by the environmental consequences (effects) of implementing each alternative.

Past, present and future activities identified for consideration of cumulative effects.

Cumulative effects are the past, present and reasonably foreseeable future actions that add to the direct and indirect effects considered in this EA. The following activities have been identified as potentially contributing to the effects analyzed herein. These activities and occurrences have contributed incrementally to changes in ecological conditions in the project area and may continue to influence conditions in the project area over the term of the project. Foreseeable future actions are those for which a proposed action has been approved or those proposed for NEPA analysis in the future. No additional activities that would affect resources in the project area are listed in the Forest's July 2008 Schedule of Proposed Actions. Other possible future actions are considered too speculative to include in this analysis.

Livestock Grazing - Livestock grazing has occurred within the analysis area for over 100 years. In the late 1800s, widespread unregulated grazing resulted in erosion, heavy surface runoff, flooding and down-cutting of streams throughout the southwest. Livestock consumption of herbaceous fine fuels, combined with active fire suppression beginning in the early 1900's has likely contributed to a decreased fire frequency and subsequent invasion of many grasslands by woody plants. The introduction of exotic grasses, most notably Lehmann lovegrass, has resulted in the displacement of native perennial grasses in some sites. The effects of these activities and events are still evident in the project area. The proposed action is designed to address the effects of historic management, but these effects will likely continue to influence resource conditions, especially soil condition, for the foreseeable future. Managed livestock grazing occurs on other allotments within the Peloncillo Mountains, but outside of the project area, and on adjacent state and private lands.

Human Activities. There are no developed recreational facilities (campgrounds and picnic areas) in the project area and access into much of the project area is limited and much of the area is roadless. Some dispersed camping occurs during hunting seasons in the fall. In addition to camping, activities in the project area include hiking, hunting, wildlife watching and limited vehicle use on a few unsurfaced roads. Private land holdings are found adjacent to the Forest boundary. Uses on these lands are largely rural and many are managed as part of ongoing grazing operations.

Because of their location along the U.S.-Mexico border, portions of the Peloncillo Mountains are used by undocumented aliens and/or drug traffickers as travel corridors. The effects of these activities include accumulations of trash, creation of wildcat foot and

vehicle trails and vandalism of range improvements, especially fences. In addition, the area has seen a substantial increase in vehicle traffic related to interdiction efforts on the part of the U.S. Border Patrol and other enforcement agencies. These activities result in localized disturbance within the project area, but may have a more severe impact on the permittees' ability to control livestock distribution and use. The effects of border crossing activities are largely outside of the control of the Forest Service and the permittees, but they are likely to require additional efforts to maintain improvements and keep to a rotation schedule. The use of roads and trails located in drainage bottoms may continue to affect riparian soil stability and vegetation cover.

Fire and fuels management. The Forest is involved in an active fire management strategy in association with the Malpais Borderlands Group and other partners. Over the term of the authorizations, several prescribed fires are likely to occur. These fires are likely to reduce woody tree canopy (and woody fuels), resulting in a more open landscape with a more dense herbaceous understory. Fires may result in short-term soil disturbance immediately following burning; however, long term effects would be to increase soil stability through increases in herbaceous cover. Prescribed fires are unlikely to contribute cumulative effects because grazing is typically deferred in burn areas at least one growing season prior to and one growing season after burning. Mechanical shredding of dense woody vegetation, primarily manzanita, is proposed elsewhere in the Peloncillo Mountains. These treatments are intended to reduce fuels and, as such, could affect fire frequency and intensity throughout the mountain range. At present, no treatments are proposed in the project area.

Wildlife

Affected Environment

The Peloncillo Mountains lie at the southeastern edge of an archipelago of “sky islands” connecting the Rocky Mountains to the north with the Sierra Madre Occidental of Mexico (McGlaughlin 1995). This archipelago forms an important migratory pathway for neotropical migratory birds and terrestrial species. Because of this, the range supports a high diversity of wildlife species, including many Mexican species rarely seen in the U.S. The area lies within New Mexico Game Management Unit 27 and Arizona Game management Unit 30A.

Listed or Proposed Threatened and Endangered Species

Seven species listed or proposed for listing under the Endangered Species Act were identified in previous consultations as occurring within the project area or for which suitable habitats may be present. Listed or proposed threatened or endangered species that potentially occur in the project area are shown in Table 3.

Table 3. Threatened and endangered species considered in this analysis.

Common Name	Status	Comments
Mammals		
Lesser Long-nosed Bat <i>Leptonycteris curasoae yerbabueanae</i>	Endangered	Few occurrence records from the project area, but suitable foraging habitat (agaves) present. No roosts known from the area.
Mexican Long-nosed Bat	Endangered	Known from only two records in the Peloncillo

Common Name	Status	Comments
<i>Leptonycteris nivalis</i>		Mountains in Guadalupe Canyon south of the project area. Considered a rare migrant in the area. Suitable foraging habitats (agaves) present.
Jaguar <i>Panthera onca</i>	Endangered	Individual observed in Peloncillos in 1996. Entire range is suitable habitat.
Birds		
Northern Aplomado Falcon <i>Falco femoralis septentrionalis</i>	Endangered	Not documented from project area, but nonessential experimental population established in southwest New Mexico.
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened with Critical Habitat	Historic sightings, but no protected habitats or designated critical habitat. A non-resident migrant in the project area.
Amphibians and Reptiles		
New Mexico Ridge-nosed Rattlesnake <i>Crotalus willardi obscurus</i>	Threatened	Likely occurs throughout the project area in low densities. Confirmed on only the Fairchild allotment. No critical habitat within the action area.
Chiricahua Leopard Frog <i>Rana chiricahuensis</i>	Threatened	Occupied habitats in the Peloncillo Mountains, but none in the project area. Suitable habitats limited to a handful of stock ponds and other man-made structures.

Sensitive Species

Forest Service Sensitive species are those species that have been identified by the Regional Forester as of concern for reduction in population viability as evidenced by 1) significant current or predicted downward trends in population numbers or density, or 2) significant current or predicted downward trends in habitat capability that would reduce a species' distribution (FSM 2670.5). Sources used to identify these species included 1) 2007 Regional Foresters list (USDA-FS 2007), 2) records available through the Arizona Heritage Data Management System and the Biota Information System of New Mexico, and 3) Forest Service project files. Many species are on the Forest Service's Regional Sensitive Species list because their distribution and habitat requirements are poorly known, but are thought to be rare. Their presence or absence within the project area is inferred because suitable habitats are present. Forest Service Sensitive species considered in the analysis are shown in Table 4.

Table 4. Forest Service Sensitive Species considered in this analysis

Common Name	Documented or suspect in Project Area	Comments
White-sided Jackrabbit <i>Lepus callotis</i>	Possible	Occurs on edge of Animas Valley. Suitable open grassland habitats very limited on the Forest.
American Peregrine Falcon <i>Falco peregrinus anatum</i>	Yes	Nests and forages in the mountain range.
Apache Northern Goshawk <i>Accipiter gentilis apache</i>	Yes	Suitable habitats (Apache, Chihuahua and Ponderosa pine forests) limited in the Peloncillos.
Bell's Vireo <i>Vireo bellii</i>	Possible	Requires dense riparian woodland, typically mesquite/willow. Habitat limited in project area and above the elevational range of the species.

Common Name	Documented or suspect in Project Area	Comments
Gould's Wild Turkey <i>Meleagris gallpavo mexicana</i>	Yes	Well-established population in Peloncillos.
Northern Gray Hawk <i>Asturina nitida maxima</i>	Yes	Nests in Guadalupe Canyon south of the project area, but rare elsewhere in Peloncillos. Suitable habitat (low-elevation cottonwood/willow gallery forests) is not found in the project area.
Giant Spotted Whiptail <i>Aspidoscelis burti stictogramma</i>	Possible	Documented for Guadalupe Canyon off-forest.
Gray Checkered Whiptail <i>Aspidoscelis dixonii</i>	No	Only documented off-Forest, at Antelope Pass, in Creosote Bush-dominated habitats, which are lacking in the project area.
Lowland Leopard Frog <i>Rana yavapaiensis</i>	Yes	Historically occurred in Guadalupe Canyon. Current status uncertain. Suitable habitats limited in project area.
Aryxna Giant Skipper <i>Agathymus aryxna</i>	Yes	Preferred host plants (<i>Agave palmeri</i> , and <i>Yucca sp.</i>) present in project area
Ursine Giant Skipper <i>Megathymus ursus</i>	Yes	Preferred host plants (<i>Agave palmeri</i> and <i>Yucca sp.</i>) present in project area.
Coppermine Milk-vetch <i>Astragalus cobrensis</i> var. <i>maguirei</i>	Yes	Occurs in upper Guadalupe Canyon (Maverick allotment).

Management Indicator Species

Forest Plan direction for Management Indicator Species (MIS) is to maintain or improve occupied habitat (PR 1, 60). Forest-wide trends of all MIS have been assessed and are reported in the Forest-wide Status Report for Management Indicator Species (USDA-FS 2006, PR 60). The background information and conclusions of this report are incorporated by reference. Ten species and the group of cavity nesters are known to occur or potentially occur in or near the project area. A description of the selection criteria and in-depth evaluations of project-level impacts are contained in a separate report (PR 51).

Table 5. Forest Service Management Indicator Species considered in this analysis.

Species	Indicator Group	Evaluation for Analysis
Pronghorn (<i>Antilocapra Americana</i>)	Herbaceous cover	Occurs in plains grasslands and semi-desert grasslands east of the project area. Suitable habitats would be limited to transitional grasslands on the fringe of the allotments.
Coues' Whitetail Deer (<i>Odocoileus virginianus couesii</i>)	Herbaceous cover Diversity	Suitable occupied habitats found throughout the project area.
Black Bear (<i>Ursus americanus</i>)	Riparian Diversity	Suitable low density habitat in all allotments.
Northern Gray Hawk (<i>Asturina nitida maxima</i>)	Riparian Dense Canopy	Accidental or rare in the project area. Breeding record from Guadalupe Canyon south of project area.
Blue-throated Hummingbird (<i>Lampornis clemenciae</i>)	Riparian	Rare in project area. Limited suitable habitat.
Thick-billed Kingbird (<i>Tyrannus crassirostris</i>)	Riparian	Small breeding population in Guadalupe Canyon. No records from project area.

Species	Indicator Group	Evaluation for Analysis
Northern Beardless-tyrannulet (<i>Camptostoma imberbe</i>)	Riparian Dense canopy	Rare breeder in Guadalupe Canyon. No records from project area.
Buff-breasted Flycatcher (<i>Empidonax fulvifrons</i>)	Diversity	Rare in Peloncillo Mountains with no breeding records. Limited suitable habitat (open pine forests) in upper elevations.
Montezuma Quail (<i>Cyrtonyx montezumae</i>)	Herbaceous cover	Suitable occupied habitats throughout project area. Peloncillo Mountains identified as primary range by AGFD. This species is identified as a priority bird species in the Arizona Partners in Flight Bird Conservation Plan (Latta 1999).
Baird's Sparrow (<i>Ammodramus bairdii</i>)	Herbaceous cover	Suitable wintering habitat in Animas Valley east of the project area. Not known to occur in the Peloncillos.
Primary and secondary cavity nesters	Cavity nesters	Suitable habitats present throughout project area. Monitored through breeding bird survey routes.

Environmental Consequences

Threatened and Endangered Species

Effects of the ongoing and long-term grazing activities on the allotments were previously evaluated through consultation in 1998 and 2002 (USDI-FWS 2002, PR 56). Effects of Forest Plan implementation were evaluated in the 2005 consultation on (USDI-FWS 2005). Livestock grazing in the project area is currently managed to comply with Biological Opinions from the U.S. Fish and Wildlife Service associated with these consultations. Based on minor changes in proposed management, updated information on resource conditions and the need to extend the term of the consultation to coincide with the term of the proposed grazing permits, project level consultation was reinitiated for the proposal in 2008 (PR 53). For species potentially affected by the proposed action or alternatives, effects are disclosed below. More extensive discussions, including “no effect” determinations, can be found in the project Biological Assessment (BA, PR 53). The USFWS biological and conference opinion was received on August 26, 2008 (PR 62).

Previous effects determinations have been developed using various versions of Regional Guidance Criteria. The criteria were developed originally in the late 1990s to provide consistent analysis for species that occur on more than one Forest in the Southwest Region of the Forest Service. The Guidance Criteria have been revised periodically, most recently in 2004; these are now known as the Regional Framework for Streamlining Informal Consultation for Livestock Grazing Activities (USDA-FS 2004). In the following evaluations, the 2004 framework criteria were applied to the effects analysis, in combination with knowledge of on-site resource conditions, to assess the effects of the proposed action. Because of the similarities in plant and animal communities on the allotments, they are treated together.

Lesser long-nosed bat (LLNB) and Mexican long-nosed bat (MLNB). These two bat species feed on the nectar and pollen of paniculate agaves (*Agave palmeri*, *A. parryi*, and *A. deserti*) and the nectar, pollen and fruit of columnar cactus. Because of their ecological similarities, the species are discussed together in this analysis. Both species have been

documented in small numbers in the Peloncillo Mountains, but no roosts have been identified. Paniculate agaves are found on all of the allotments and occupied roosts are known from the neighboring Chiricahua Mountains. Both species readily fly long distances from roosts to forage, so it is assumed that the project area provides foraging habitat. No surveys of agave density or estimates of the extent of livestock herbivory have been made on the allotments; however, ocular estimates of the allotments indicate that agaves are distributed throughout the project area, with highest densities in the desert grassland communities at lower elevations.

Direct effects would be related to disturbance of known roost sites. No roosts are known to occur on the allotments, so no direct effects to the LLNB and MLNB are anticipated as a result of the proposed action. If a roost is discovered, it will not be disturbed or modified pursuant to conservation measures already in place (USDI-FWS 2002, and mitigation measures in the proposed action).

Indirect effects may be associated with damage to agaves either as a result of ground-disturbing livestock construction activities or through herbivory by livestock on agave stalks (USDI-FWS 2002). Mitigation is in place to avoid the destruction of agaves as a result of construction activities. Grazing during the May-June agave bolting (flowering) season has been inferred to increase the susceptibility of flowering agaves to livestock herbivory (USDI-FWS 2002). However, over the course of a two-year study, Widmer (2002) found no significant difference between areas grazed by livestock during the agave flowering season and ungrazed areas. Because bolting agaves are often heavily used by wildlife, especially deer, she concluded that removing cattle during the bolting season does not necessarily ensure a significantly lower level of herbivory. Other studies and monitoring have produced similar inconclusive results (Bowers and McGlaughlin 2001, USDA/FS 2007, PR 64). Livestock use on agaves appears to be correlated to forage abundance. Thus, grazing on agaves by both livestock and wildlife increases in dry years (Widmer 2002, USDA-FS 2007). During drought, the Forest implements drought policies (PR 63) that serve to reduce stocking when forage is limited. Livestock herbivory on agaves diminishes significantly at distances greater than 1.21 km (0.75 mi) from water (Widmer 2002). Thus, many remote (from water) agave populations are likely to be unaffected by livestock grazing, regardless of the season of use. Thus, many agaves are not exposed to livestock use.

As proposed, Grazing on the Fairchild, Skeleton, Outlaw Mountain, Deer Creek and Juniper Basin allotments would be limited to the winter season and cattle would not be on the allotments during the agave bolting season. Grazing would be authorized on the Graves and Skull Canyon allotments during the summer, but these two allotments are often deferred during the summer months due to the lack of available water. These management strategies, combined with the presence of high quantities of grass and browse in this project area suggests that cattle are unlikely to cause significant damage to agave plants.

In summary, there are no known roosts in the project area and the species appear to be rare on the allotments. Project design features and mitigation measures should limit the indirect effects of the proposed action on agaves to a small number of individual plants. The prescribed season of use and pasture deferments should assure that the majority of the project area is not grazed during the agave flowering season. Livestock herbivory

may affect a small number of agave stalks, especially in the vicinity of waters. However, the intensity of livestock herbivory in grazed pastures is not expected to be discernable from herbivory associated with wildlife across the allotments. The determination is *may affect, not likely to adversely affect* for all allotments.

Jaguar. Jaguars are found in habitats ranging from Sonoran desert scrub to subalpine coniferous forest. Jaguars typically have large home ranges with a primary diet of javelina, mule and white-tailed deer and other smaller prey. They may opportunistically prey on cattle. Since 1996, jaguars have been photographed twice in the Peloncillo Mountains and the Animas Mountains to the east. Other documented occurrences within the Peloncillo and Chiricahua Mountain complex include a confirmed kill in 1986 (in the Dos Cabezas Mountains to the northwest) and reports dating back to the early 20th century. Considering the relative orientation of the project area to historic and recent jaguar observations, the rugged characteristics of the allotments and the wide-ranging habits of jaguars, the entire Peloncillo Range is considered to have potential as travel corridors or hunting areas. Based on recent occurrences, a jaguar or jaguars may be reasonably expected to occur in the project area in the next ten years.

In Arizona, the decline of the species was concurrent with predator control associated with land settlement and development of the livestock industry. Predator control activities aimed at jaguar no longer occur. Activities that potentially affect jaguars are those that result in fragmentation of habitats or disruption of movement corridors that allow dispersal into unoccupied habitat. Excessive removal of woody or herbaceous vegetation, particularly within riparian corridors, could affect cover for jaguars and/or their prey; however, jaguars are not dependent solely on dense vegetation for escape or protective cover. Habitat remoteness and steep topographic relief appear to provide the majority of cover available to this species in the southwest.

Livestock grazing within the project area will modify herbaceous cover in upland and riparian areas, but the degree of modification is not expected to be sufficient to affect jaguars or their prey. Riparian areas in the project area are in fair or good condition and management practices identified under the proposed action are expected to maintain or improve these conditions. In addition, because of the presence of rough topography, heavy upland cover and remote terrain, jaguar movements would not be limited to riparian corridors. Previous consultations (USDA-FS 2002, USDI-FWS 2002) have determined that the proposed action *may affect, but is not likely to adversely affect* jaguar on all six allotments based on the following:

- Suitable jaguar habitats exist in the project area. Because the area is remote and unpopulated, there are corridors of suitable habitat to allow movement between ranges in the U.S. and Mexico. Over the term of the project there is a small likelihood that the species will occur in the project area.
- Proposed grazing and livestock management actions should not reduce cover in riparian areas to a degree that would affect jaguar cover. Movements of jaguars are not restricted to riparian corridors and suitable habitats are found in uplands.
- Livestock management activities will not permanently disrupt connectivity corridors within the U.S. and between the U.S. and Mexico or within the project area.

Management appears to be maintaining or improving resource conditions and the proposed action largely continues current management. The proposed action is not expected to result in effects in a manner or to an extent not considered previously. The determination (*not likely to adversely affect*) has not changed.

Northern Aplomado Falcon. The Northern Aplomado falcon was listed as endangered on March 3, 1986 without critical habitat. The species was listed due to its extirpation in the U.S. and evidence of population declines and high levels of pesticide contamination in Mexico. Aplomado habitat is variable, but is generally described as open grassland or savannah with scattered trees and shrubs, especially yuccas. There are no known occurrences of the species on the project area, but the area has not been intensively surveyed. The last confirmed report in Arizona was from 1977 near Rodeo New Mexico. A nesting pair of birds was observed in Luna County New Mexico in 2002, 50-100 miles east of the project area. In 2006, an experimental, non-essential population was established in southeast New Mexico near Truth or Consequences.

Limited suitable savannah grassland habitat is found in the project area. Managed livestock grazing as proposed should maintain prey habitats and will not affect scattered trees needed for nesting. Based on this, the action is *not likely to adversely affect* the Northern Aplomado Falcon.

Mexican Spotted Owl. The Mexican spotted owl (MSO) was listed as threatened in 1993 and critical habitat was designated in 2004. No protected activity centers (PACs) or critical habitat are identified within the analysis area. There are records of three sightings of MSO in the Peloncillo Mountains, suggesting that individuals may occasionally forage in the area. Nesting has not been documented.

Light to moderate mostly dormant season grazing is expected to maintain suitable habitat characteristics. Effects would be restricted to minor disturbance of transient or dispersing owls. Therefore, the proposal is *not likely to adversely affect* MSO.

New Mexico Ridge-nosed Rattlesnake (NMRR). The NMRR is endemic to three small, isolated mountain ranges: the Peloncillo, Animas, and San Luis. It is very rarely encountered in the Peloncillo Mountains, requiring 30 or more person-days to locate a single individual. Based on an analysis conducted by Holycross and Smith (2001), all allotments in the project area have canyons and draws likely or probably supporting NMRR. However, the only documented localities are on the Fairchild allotment. Also, some key habitat elements, such as steep, rocky intermittent streams, are lacking from most of the land base of these allotments.

The 2002 consultation arrived at *may affect, likely to adversely affect* determinations for all allotments in the Peloncillo Mountains, because grazing, especially heavy grazing can alter vegetation life forms important to the NMRR. Current and projected grazing intensities are lower than previous levels and monitoring indicates that upland vegetation conditions are improving. Nevertheless, livestock grazing will continue to affect vegetation cover to some degree. Therefore, the determination remains unchanged. The USFWS concluded in their opinion (PR 62) that the proposed action is not likely to jeopardize the continued existence of the NMRR.

Chiricahua Leopard Frog. The Chiricahua leopard frog (CLF) was listed as Threatened in June 2002 (67 FR 40790). The frog requires permanent or nearly permanent pools or ponds for breeding. CLF exist in Cloverdale Creek and the adjacent cienega (including a recently installed drinker), as well as the house pond and overflow at the headwaters. They had also been documented using metal stock tanks on roads adjacent to Cloverdale Creek. The CLF is also known from State Line Tank on the Geronimo allotment, just inside the New Mexico border, and about one mile southeast of the Fairchild allotment. However, there are no records from any of the allotments in the project area. CLF surveys in the Peloncillo Mountains were completed in 2008 (PR 70).

For the purposes of determining effects to the species the Framework Criteria (USFS 2004b) define habitat for the species as follows:

- *Suitable habitat* includes lakes, rivers, streams, springs, ponds, and man-made structures such as reservoirs, stock tanks, and irrigation ditches.
- *Potential habitats* are those aquatic systems (within the historic range of the frog) that are damaged or degraded from natural perturbations or chronic stressors (such as improper livestock grazing) but have appropriate hydrological and ecological components capable of being restored to suitable habitat.
- *Occupied habitat* includes sites where the frog is known to occur or where it was present within the last 10 years, but no follow-up surveys have been conducted confirming its absence and suitable habitat is present.
- *Likely to be occupied habitat* includes: 1) currently suitable habitat where the frog has been documented within the last 10 years, but is apparently now absent or 2) suitable habitat that is (a) within 1 mi overland of occupied habitat, (b) within 3 mi along an ephemeral or intermittent drainage from occupied habitat, or (c) within 5 mi along a perennial stream from occupied habitat.

Suitable habitats are present in the form of stock ponds and other man-made structures scattered throughout the allotments. In wet years, these sites have the appropriate hydrological and ecological components to be considered potential habitats, but they may go dry during drought periods. As noted above, occupied habitats have not been identified within the project area.

Chiricahua leopard frog populations are often small and their habitats are dynamic, resulting in a relatively low probability of long-term population persistence. However, if populations are relatively close together and numerous, extirpated sites can be recolonized. Historically, the Peloncillo Mountains supported several occupied sites but CLF are now apparently absent from nearly all of these locations (none of which are in allotments in the project area). There is a possibility that small breeding populations may persist undetected at one or more isolated locations on the Forest or on nearby private lands that have not been surveyed. These populations, if extant, may serve as a source population for colonization of suitable habitats. There also exists the possibility that CLF may be re-introduced into suitable habitats in coming years through implementation of the species' recovery plan. Due to the absence of permanent water in the project area, to potential for frogs to establish in the project area allotments is small.

The consultation framework (USFS 2004b) identify three criteria that must be met to arrive at a *may affect, not likely to adversely affect* determination. These criteria are listed below with the Forest's conclusions relative to each one.

1. *There will be no livestock use or management activities in the action area, where the species may be present (grazing is allowed in non-occupied suitable habitat).*

There are no known occupied habitats in the project area; therefore no livestock use will occur where the species is present. Non-occupied suitable habitats (stock ponds) occur in the project area and seasonal livestock use will occur in some of these habitats.

2. *Indirect effects occurring within the action area, where the frog is reasonably certain to occur, which result from upland livestock grazing are determined to be insignificant or discountable.*

Upland vegetation, soil and riparian conditions have been assessed throughout the project area and are judged to be contributing to satisfactory watershed and riparian conditions. Upland and riparian vegetation is meeting Forest Plan standards. Trends in soil and watershed conditions appear to be upward, based on observations of increasing litter and decreasing bare ground. Best management practices and light to moderate utilization proposed should maintain these trends.

3. *Proposed livestock management activities, within the action area, will not increase the likelihood that non-native predators or chytrid fungi will colonize or be introduced to such aquatic sites.*

The Forest's Chiricahua Leopard Frog Management Guidelines will be implemented as part of the proposed action in order to minimize the potential introduction of predators and/or disease.

Based on the current condition and trend of resources and mitigation measures in place or proposed, it is unlikely that environmental effects will change significantly in the next ten years. The proposed action largely continues the management already in place on the allotments. The proposed action is not expected to result in effects in a manner or to an extent not considered previously. New stock ponds identified in the proposed action may provide additional suitable habitats over the next few years. Based on the apparent absence of the species and limited suitable habitats in the allotments, the proposed action *may affect, but is not likely to adversely affect* the Chiricahua leopard frog on all seven allotments.

Sensitive Species

Effects to sensitive species have been analyzed in a biological evaluation prepared for this project (PR 51) and are summarized below.

For the following species, a Forest Service Biologist has determined that the proposed action *may affect individuals, but is unlikely to result in a trend toward federal listing or a loss of viability.*

White-sided Jackrabbit (*Lepus callotis*). The White-sided Jackrabbit is primarily a Mexican grassland species. They are considered rare in New Mexico and do not occur in Arizona. The limited literature on this species suggests that it is an obligate of the tobosa

(*Hilaria mutica*) flatlands of the Animas Valley, rather than the foothills of the Peloncillo EMA (Best and Henry 1993). Preferred grasslands generally have little to no shrub cover (Bednarz and Cook 1984, Best and Henry 1993, Desmond 2004). This species selects level ground at elevations of 1,525-1,620 m in southwestern New Mexico. Forest Service records contain only one unconfirmed sighting (R. Smith, Coronado National Forest, pers. comm.); no specific locality data were given. Desmond (2004) indicated that this species can be negatively affected by grazing when grazing pressure is high, as in drought years. She based this on the fact that in a heavily grazed landscape, this species seeks out areas with the highest grass cover.

This species is likely peripheral to the seven allotments, which seem to be suboptimal habitat composed of rolling to steep desert grasslands and woodlands. There is a small possibility that individuals may occur within limited suitable habitat in the project area.

Gould's Wild Turkey (*Meleagris gallopavo mexicana*). Gould's Wild Turkey is a subspecies of the wild turkey that is predominately Mexican in distribution. Both Merriam's and Gould's Wild Turkeys have been introduced and/or reintroduced into the Peloncillo Mountains at least as far back as 1939 (L. Kamees, New Mexico Department of Game and Fish. NMDGF, pers. comm., 1/30/2005). Habitat of the Gould's Turkey in the action area is composed of Gray Oak, Arizona White Oak, juniper, manzanita, and Chihuahua Pine with an understory of Madrone (WSWTTC 2004). The species is often associated with riparian areas, but nesting usually occurs on north-facing slopes, under trees and shrubs, and next to clumps of beargrass. Roost sites usually include the largest trees in the vicinity.

Gould's Turkeys are not overly abundant in the Peloncillos, but there have been large-scale efforts to re-establish the birds across several of the mountain ranges in the Coronado National Forest, including the nearby Chiricahua Mountains (Heffelfinger et al. 2000). Forest-wide population trends are upward as a result of ongoing re-establishment efforts. In recent years, there have been several restoration projects, primarily water developments, so the prognosis for this species in the Peloncillos is good. The species appears to be able to coexist with well-managed livestock grazing at moderate utilization levels. Limiting factors appear to be the presence of roost trees of sufficient size and the availability of free water. Mature grass seed heads are a source of forage for turkeys. Proposed utilization levels should retain sufficient herbaceous forage for turkeys across the landscape, although areas of livestock concentration may impact forage resources on a local scale. Growing season rest should allow native grasses to set seed each year and provide forage for turkeys. Effects are expected to be limited to disturbance as a result of minor construction or livestock management activities and localized removal of grass cover. Neither of the project alternatives will affect the quantity or quality of roost trees. Additional waters identified in the proposed action should provide additional year-round water sources.

Giant Spotted Whiptail (*Aspidoscelis burti stictogramma*). The Giant Spotted Whiptail occurs in disjunct populations among canyons and large riparian drainages in the foothills of Madrean woodlands. The species is relatively well-distributed across the Forest. However, in the Peloncillo Mountains it has only been documented in Guadalupe Canyon (Degenhardt et al. 1996); it has not been documented in the allotments in the project area. This species is listed as threatened by the New Mexico Department of Game and Fish.

The loss of cover could affect the species and potentially its prey base. However, grazing as proposed is unlikely to significantly reduce cover. Direct effects potentially include disturbance of individuals during range construction projects or trampling by livestock, which is considered unlikely.

Lowland Leopard Frog (*Rana yavapaiensis*). This species historically occurred in Guadalupe Canyon at the southern end of the Peloncillo Mountains, but has not been documented there since 1985. There are no records from the project area and suitable perennial water habitats are limited. This species is listed as endangered in the State of New Mexico. In Arizona, it is a species of conservation concern. The threats facing this species include exotic disease (especially Chytridiomycosis) and other diseases; predation by bullfrogs, crayfish, and nonnative fishes; global climate change; improper grazing; and altered hydrology.

It is unlikely that the species occurs in the project area. Nevertheless, under the proposed action, the Forest will continue to implement the Forest Chiricahua Leopard Frog Habitat Maintenance Guidelines (PR 57). These measures would also benefit lowland leopard frogs by increasing the chances of detecting any extant frogs and insuring maintenance of suitable habitats.

Coppermine Milk-vetch (*Astragalus cobrensis* var. *maguirei*). The only known population of this plant in the Peloncillo Mountains occurs near Guadalupe Spring on the Maverick allotment (Malusa 2001). It is a riparian obligate, associated with full sun in canyon bottoms, often on rocky soils, or in partial shade, growing on organic soils in leaf litter. The plant is not known to occur outside of the Maverick allotment, but suitable habitats are found in several canyons on other allotments and not all suitable habitats have been surveyed. The primary threat to the species appears to be recreation, especially camping in riparian areas. Previous surveys for the plant indicate little damage from livestock (Malusa 2001); however, unlike other *Astragalus* species, this variety appears to be palatable to livestock. Under the proposed action, limits on the timing, duration and intensity of grazing should minimize impacts related to livestock grazing. Nevertheless, because the species is restricted to a single relatively small population, and because the plant appears to be palatable, there would remain some risk that grazing could impact populations that occur undetected within the project area.

For the following species, a Forest Service Biologist has determined that the proposed action will have *no impact* on the species.

American Peregrine Falcon (*Falco peregrinus anatum*). This is a species of concern in Hidalgo County, New Mexico (FWS Ecological Services, Albuquerque); it is known to occur in the Peloncillo Mountains. The species was delisted as a federally endangered species in 1999, primarily due to its recovery following the ban on the pesticide DDT (64 FR 46542). This species uses rock outcrops and cliffs to nest, but will forage in adjacent, open areas such as grasslands or above wooded areas (Burger 2005). Primary threats to the species are associated with disturbance at cliff nest sites. Managed grazing probably has little influence on this species' nesting or foraging behavior or habitats, prey abundance or other aspects of its life history.

Apache Northern Goshawk (*Accipiter gentilis apache*). This subspecies is primarily limited to southern Arizona and Mexico. It primarily inhabits ponderosa pine habitats,

mixed conifer woodlands, or spruce/fir forests, but in southeastern Arizona it frequents Madrean pine/oak woodlands dominated by Apache, Chihuahuah, and ponderosa pines (Corman and Wise-Gervais 2005). Forests usually have a tall canopy, but open enough for unobstructed flight. Suitable habitat in the project area exists only in the riparian stringers of Chihuahuah and other pines, so the Peloncillo Mountains likely have little holding capacity for this subspecies. Light grazing on grasses in riparian corridors would seem to have little effect on the growth of trees and prey base.

Bell's Vireo (*Vireo bellii*). Bell's Vireo is a small neotropical migratory bird found in southwestern and central USA. Although populations along the Colorado River have undergone drastic declines, most populations are stable to increasing (Corman and Wise-Gervais 2005) in Arizona. In Arizona and New Mexico, Bell's Vireo generally inhabits low, dense vegetation and mesquite woodland riparian edges (AGFD 2002, Corman and Wise Gervais 2005) below about 3,500 ft. It is not known if this species occurs within the boundaries of the Peloncillo EMA as this species is mostly a valley-dweller. Habitat in the Peloncillos would be limited to the lower elevations where semi-desert grassland is the predominant vegetation type, especially where mesquites are present, as well as riparian areas in semi-desert grasslands. These habitat components are primarily along the lower elevation riparian corridors, which are very limited. Riparian monitoring indicates that riparian conditions are stable or upward in the project area under current management (PR 42).

Northern Gray Hawk (*Buteo nitida maxima*). Although this species has been reported from the Peloncillo Mountains in Guadalupe Canyon, it is largely a peripheral, primarily Mexican species. In the U.S., it generally occurs along large riparian areas, especially along the Santa Cruz and San Pedro Rivers and their larger tributaries. Thus, it is considered an accidental to rare inhabitant of the Peloncillo Mountains. Riparian habitats suitable to support nesting are lacking in the project area.

Aryxna Giant Skipper (*Agathymus aryxna*) and Ursine Giant Skipper (*Megathymus ursus*). These butterfly species occur throughout the Coronado National Forest in suitable habitats containing their preferred food plants: *Agave palmeri* for *A. aryxna* and various species of *Yucca* for *M. ursus* (Prchal 2001). Adults fly from early September to mid-November and adult males are attracted to mud. Eggs are laid on the food plant and the larvae live and hibernate on the agave leaves. Possible effects from livestock grazing include the removal or disturbance of food plants or the trampling of adults in muddy areas. These butterflies and their host plants are widespread in southeastern Arizona and agave leaves are typically not eaten by cattle.

Management Indicator Species

Effects of the proposed action and alternatives are evaluated in the project-level analysis (PR 51) and are summarized below. For all Management Indicator Species considered, the alternatives are not expected to cause a detectable change in species population trends or a loss of occupied habitat.

Pronghorn (*Antilocapra americana*). This species is associated primarily with plains grasslands in the Animas Valley to the east of the project area (O'Gara and Yoakum 2004). Pronghorn occur to a lesser extent in semi-desert grasslands. There are no records of the species occurring in the project area and the project area does not contain

grasslands of sufficient size to provide year-round suitable habitat. Individuals may occasionally wander on to the allotments from adjacent grasslands. Suitable habitats would be limited to transitional grasslands on the fringe of the allotments. The no grazing alternative would maximize the amount of herbaceous cover in suitable habitats and result in greater cover compared to the proposed action. However, light to moderate grazing under the proposed action should also leave sufficient herbaceous vegetation to provide cover for pronghorn. Because of the limited extent of suitable habitats on the Forest, it is unlikely that Forest habitats alone would be sufficient to support a population of pronghorn under either alternative.

Coues White-tailed Deer (*Odocoileus virginianus couesi*). Coues white-tailed deer inhabit mixed-oak forests, semidesert grasslands, pine forests, and riparian habitats (Hoffmeister 1986). White-tailed deer tend to use hilly, mixed-oak habitats more than other types and tend to avoid open, grassy areas (Ockenfels et al. 1991). Bedding areas are often dependent on adequate thermal (canopy) and security cover. Shrubs compose over half of the yearly diet. The presence of freestanding water is important for suitable whitetail habitat and they no doubt benefit from the presence of permanent livestock waters in the allotments. The quantity and quality of white-tailed deer habitat is considered similar to that available in 1986. Several large fires have occurred on the Forest and within the project area; these fires have likely improved deer habitats by creating a variety of seral stages that benefit deer. The entire project area is considered suitable habitat, and represents less than two percent of the total occupied habitat on the Forest. Survey data are collected by the Arizona Game and Fish Department (AGFD) and New Mexico Game and Fish Department (NMGFD) on the basis of Game Management Units. Neither agency estimates populations, but monitors trends based on fawn survival and recruitment. No data are available specifically for the Peloncillo Mountains.

Heavy grazing may reduce fawn survival and recruitment by eliminating hiding cover. Overuse of available grass forage may also lead to increased livestock use of browse plants and forbs used by deer. However, grazing as proposed would not be of sufficient intensity or duration to deplete forage or reduce cover. The emphasis on winter use should insure opportunities for herbaceous plant regrowth each year. Utilization limits should provide for the retention of sufficient herbaceous cover. Moreover, steep slopes throughout much of the analysis area restrict the movement of livestock into many areas that are readily used by white-tailed deer. Under the proposed action, disturbance associated with improvement construction or livestock grazing may displace deer for short periods, but displacement would be temporary and would not affect population trends.

Black Bear (*Ursus americanus*). Black bears are wide ranging habitat generalists that prefer areas of dense cover and high vegetative diversity. Because of the “sky island” nature of the CNF, black bear populations tend to be isolated from each other by wide expanses of non-suitable habitat between the mountain ranges. Some movement between ranges is known to occur, but is not common. Because of their secretive and solitary nature, bears are difficult to census, and there have been no recent attempts to census bear on the Forest (USDA-FS 2006). The project area could be considered suitable but low density bear habitat. Neither alternative would affect mid-story vegetation cover

preferred by bears. Nearly all grazing will occur during the winter when bears are in dens.

Northern Beardless-Tyrannulet (*Camptostoma imberbe*). Northern beardless tyrannulet is a tropical species that reaches its northern extent in southeastern Arizona. It is considered a rare breeder in the Peloncillo Mountains (PR 51), primarily in Guadalupe Canyon. It is also a Forest Service sensitive species. The general breeding distribution of the species has changed little since the mid-1990's (Corman and Wise-Gervais 2006). The primary threats to the species are related to deforestation of lowland deciduous riparian habitats in Mexico and Central America. Managed seasonal livestock grazing as proposed is not expected to affect riparian regeneration. Riparian monitoring indicates that riparian conditions are stable or upward in the project area under current management (PR 42).

Northern Gray Hawk (*Buteo nitida maxima*). Potential effects for this species are discussed above under Sensitive Species.

Montezuma (Mearns') Quail (*Cyrtonyx montezumae*). Montezuma quail identified as a priority bird species in the Arizona Partners in Flight Bird Conservation Plan (Latta et al 1999). The Peloncillo Mountains are identified as primary range for Montezuma' quail by AGFD (AGFD 2005, PR 58). The species potentially occurs throughout suitable broadleaf evergreen woodland, deciduous and evergreen riparian forest habitats in the project area. Across the Forest, the amount of potential habitat has not changed significantly since 1986, but habitat suitability has likely improved as a result of improved livestock management and reductions in utilization over the past two decades. Harvest data provide an index to populations. Data collected by the Arizona Game and Fish Department (AGFD) indicate that Arizona populations have fluctuated over time, but are currently similar to mid-1980's levels (PR 60). There are no population data listed in BISON-M for New Mexico or the Peloncillo Mountains.

Alternative 1 would maximize the amount of residual herbaceous cover that provides Montezuma quail habitat within the analysis area. However, light to moderate grazing that leaves adequate cover apparently benefits habitat quality when compared to ungrazed areas by increasing the availability of food resources, so the No Action alternative may not be optimum for Montezuma quail. In addition, Montezuma quail populations are highly correlated to the amount and timing of summer precipitation. Intuitively, elimination of grazing would increase residual herbaceous cover for quail, but without sufficient precipitation the effects of grazing changes alone on long-term trends for quail populations are difficult to predict. Light to moderate utilization and adequate pasture rest proposed under *Alternative 2* should maintain or increase grass plant production and herbaceous cover. Design features that provide for suitable stubble height will be used to maintain cover.

Blue-throated Hummingbird (*Lampornis clemenciae*). The project area is at the very northern extreme of the species' range. Low numbers of birds are usually observed during NABBS routes in wet canyons in the nearby Chiricahua Mountains but data are insufficient to detect trends (Sauer 2004). The species appears to be highly correlated to the presence of running water, which is not found in the project area.

Northern Buff-breasted Flycatcher (*Empidonax fulvifrons pygmaeus*). The buff-breasted flycatcher occurs quite widely in open pine forests in Mexico and Central America. The U.S. breeding population is restricted to a few higher elevation canyons in the Huachuca and Chiricahua Mountains from March to September each year. It is not known to nest in the Peloncillo Mountains, but limited suitable habitats may occur at upper elevations. Populations of buff-breasted flycatcher appear to be influenced by events such as fire that create or maintain an open grass understory in the bird's pine-oak woodland habitat. Winter use should optimize herbaceous understory by allowing for complete grass re-growth each summer and light to moderate utilization should retain sufficient residual herbaceous biomass to provide suitable year round habitats.

Cavity Nesters. Habitat for cavity nesters (mature trees and snags) is widespread across the Forest and is estimated to be increasing as a result of several large fires and insect infestations that have killed thousands of trees over the past decade. Grazing-related activities in the project area would affect cavity nesters only if they are of sufficient scale and intensity to change the rate of regeneration of cavity bearing trees. No removal of trees is proposed.

Neotropical Migratory Birds and Important Bird Areas

Executive Order 13186, of January 10, 2001 directs Federal agencies to support migratory bird conservation and to “ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.” Advice from the Forest Service Southwestern Regional Office is to analyze effects in the following manner: (1) effects to Species of Concern listed in the Arizona Partners in Flight Bird Conservation Plan; (2) effects to Important Bird Areas (IBAs) identified by the National Audubon Society; and (3) effects to important overwintering areas.

Species of Concern. The Arizona State Partners in Flight Bird Conservation Plan (Latta 1999) and the New Mexico Partners in Flight Bird Conservation Plan (Norris et al 2003) list priority species of concern by habitat type. Species that potentially occur in the project area are shown in Table 6. Species of concern identified in the project area utilize a variety of habitats. Therefore, the effects analysis prepared for the proposed action (PR 49) predicts a mix of effects for species of concern analyzed. In general, grassland-dependant species would be affected by grazing activities that remove significant quantities of herbaceous cover; riparian-dependant species would be affected by activities that degrade riparian areas. Under the proposed action, light to moderate utilization and growing season rest are expected to maintain current conditions and not result in significant impacts to habitats required by migratory bird species.

Table 6. Species analysis based on general effects of grazing to habitats and important components of the habitat. Habitat and components are based largely on Corman and Wise-Gervais (2005).

Species	Habitat Type	Important Components	Effects from grazing
Buff-breasted Flycatcher	Madrean Pine/oak woodland	Open woodlands with herbaceous understory	Generally negative from increase in density of trees and shrubs
Virginia's Warbler	A generalist of oak and juniper	Upland, riparian, brushy areas	Generally positive, but severely affected by controlled burns.

Species	Habitat Type	Important Components	Effects from grazing
	woodlands and conifer forests		
Grace's Warbler	Primarily in montane conifer forests, but also into pine/oak or oak woodlands	At the relatively low elevations of the project area, these are most likely to be found in riparian areas	Little effect on this species in the peripheral habitat of the project area
Scott's Oriole	Desert to oak woodlands and chaparral	Generally open areas	Generally negative from increase in density of trees and shrubs
Broad-billed Hummingbird	Madrean evergreen woodlands	Riparian areas among sycamores and cottonwoods	Little effect on the species anticipated, provided riparian areas are not degraded
Black-chinned Hummingbird	Mid-elevation habitats, such as oak/juniper and chaparral	Highest densities in riparian areas	No effect anticipated
Northern Beardless-tyrannulet	Desert and semi-desert grasslands	Generally associated with upper riparian areas, such as upper floodplains with mesquite bosques and a variety of deciduous hardwood species	Little effect on the species anticipated, provided riparian areas are not degraded
Lucy's Warbler	Desert and semi-desert grassland	In thickets along streams, such as mesquite bosques and hardwoods	Probably would benefit from shrub and tree invasion along streams
Hepatic Tanager	Pine/oak woodlands to montane conifer forests	A generalist found in terrestrial and riparian situations, of both open and closed stands.	No effect anticipated
Hooded Oriole	Desert, semi-desert grasslands and Madrean encinal woodlands	Found in riparian areas associated with broadleaf deciduous trees	Generally little if riparian areas are maintained
Red-faced Warbler	Pine/oak woodlands and montane mixed-conifer forest and subalpine forest	Associated with mesic montane environments; in the Peloncillos, they are expected from mature pine forests with and understory of other species	No effect anticipated.
Olive Warbler	Mostly montane coniferous forests, but also Pine/oak woodland	In our area, associated with pines with an understory of oaks, alligator juniper and madrone	No effect anticipated
Elf Owl	Desert, semidesert grasslands, and Madrean oak woodlands	Often associated with Arizona Sycamore in our area (hence, riparian)	No effect anticipated from grazing or range Improvement projects
Common Poorwill	Deserts, Semi-deserts, chaparral, and Madrean oak woodlands	Usually associated with open areas	A negative effect from disturbance of nest sites is expected
Swainson's	Semi-desert grassland	Closely associated with	Negative effect from heavy

Species	Habitat Type	Important Components	Effects from grazing
Hawk		grassland habitats, but has some flexibility with regards to the presence of shrubs. Most nests are in Velvet Mesquite	grazing of grasslands. This species is closely associated with semi-desert grasslands and open areas. Over-grazing has been implicated in declines
Cassin's Sparrow	Semi-desert grasslands	Associated with tall mature, native grasses and scattered, low Velvet Mesquite	Negative effect from grazing and positive from range improvement projects in degraded landscapes
Gray Vireo	Juniper and pinyon/juniper habitats, but also in Madrean oak woodlands; chaparral	Open oak and pine areas	No effect anticipated
Black-throated Gray Warbler	Oak, pine/oak, and oak/juniper woodlands	Upland or along drainages that contain a pine component; generally more open stands	This species may benefit from oak and juniper invasion if woodlands remain relatively open

Effects to Important Bird Areas

Clanton Canyon, located at the southern end of the project area is identified as an IBA by the National Audubon Society (http://nm.audubon.org/NM_birding/iba/ibawriteups/clantoncanyon.html). Guadalupe Canyon on the southern edge of the Peloncillo Mountains is also identified as an IBA. This IBA is entirely outside of the project area. The proposed action is limited to the authorization of low intensity, seasonal livestock grazing and continues practices that have been in place for many years. The authorization is not expected to affect the designation of the IBA or to affect the characteristics that led to the designation of the IBA.

Effects to Important Overwintering Sites

The Peloncillo Mountains are located in an intersection zone where Rocky Mountain forests, Sierra Madrean woodlands, Chihuahuan and Sonoran deserts and plains grasslands converge. Because of this, the mountains are located in an important migratory corridor for numerous avian species, and many species overwinter in the area.

The proposed action is limited to the authorization of low intensity, seasonal livestock grazing and continues practices that have been in place for many years. The proposal is not expected to affect the overall diversity of the area that provides habitat for wintering birds.

Cumulative Effects – Wildlife and Rare Plants

Livestock grazing occurs on private lands outside of the project area at varying intensities and durations. This activity could affect the amount of herbaceous cover available for species that rely on this cover in the project area. For less mobile species, significant reductions in herbaceous cover may affect migration on to and off of suitable habitats on the forest by creating areas of unsuitable habitat. On the Forest, management will perpetuate suitable herbaceous cover and is not expected to contribute cumulatively to potential habitat loss off of public lands. Foot and vehicle traffic related to smuggling and

interdiction will continue to result in minor disturbance. No significant disturbance effects are anticipated as a result of the proposed action, so cumulative effects are not anticipated. The presence of grazing permittees actively working in the project area may have some deterrent effect on smugglers looking to remain undetected. Continued use of scribed fires on the landscape should improve habitat conditions for most species by creating a mosaic of habitats and reducing woody fuels that carry large damaging wildfires. Both alternatives would contribute to fire behavior by leaving sufficient herbaceous biomass to support prescribed fire.

Soil and Watershed Condition

Affected Environment

The geology underlying the project area is largely volcanic consisting of rhyolite volcanics and basalt. Minor alluvial deposits are on the margins of the project area. As a consequence, the soils are not very diverse. In general, the soils are shallow to deep very cobbly to extremely cobbly sandy loams with numerous rock outcrops.

Watershed condition is evaluated based on the amount of effective cover present. Effective ground cover is rock, live plants or plant litter that is capable of intercepting falling raindrops and dissipating their potential erosive energy before they encounter bare soil. The evaluation of soil condition is based on an interpretation of factors that affect three interrelated primary soil functions: soil stability, soil hydrology and nutrient cycling. Soil condition was evaluated in 2008 using a combination of field inspections and interpretations based on historic livestock use patterns, General Ecosystem Survey (GES) data, and slope characteristics (PR 45). Field data were collected at key areas, permanent range monitoring transect locations and other representative sites where livestock graze. Thus, the data represent the condition of soils that have been exposed to grazing livestock. Based on interpretation of these soil functions, soil condition is broken out into one of three condition classes:

- **Satisfactory.** Soil function is being sustained and soil is functioning properly and normally.
- **Impaired.** The ability of the soil to function properly and normally has been reduced and/or there exists an increased vulnerability to degradation. Changes in land management practices or other preventative measures may be appropriate.
- **Unsatisfactory.** Degradation or loss of vital soil functions has resulted in the inability of the soil to maintain resource values, sustain outputs or recover from impacts.

Small areas of impaired soils are found on the Fairchild, Outlaw Mountain and Skeleton Canyon allotments (Table 7). These sites are characterized by compacted soils and low vegetative groundcover. All of these sites are in relatively flat areas where livestock have historically concentrated. Combined, these areas represent less than one percent of the project area. Elsewhere in the project area, soils are satisfactory and retain their inherent productivity.

Table 7. Soil condition ratings by allotment on the north Peloncillo Mountains allotments.

Allotment	Acres in Satisfactory Soil Condition	Acres in Impaired Soil Condition	Total Acres	Percent Impaired
Deer Creek	4,863	0	4,863	0.0%
Fairchild	3,153	17	3,170	0.5%
Graves	471	0	471	0.0%
Juniper Basin	3,322	0	3,322	0.0%
Outlaw Mountain	2,327	29	2,356	1.2%
Skeleton Canyon	4,555	30	4,585	0.7%
Skull Canyon	1,111	0	1,111	0.0%
Total	19,802	76	19,878	0.4%

Environmental Consequences

Livestock grazing for 10 years may impact soil and watershed function by compacting the soil surface, removing plant material or changing the plant community composition. Change in soil condition class is a long-term process with many influences, so actual soil condition is not expected to change significantly within the ten-year analysis period, regardless of alternative selected. This analysis reflects the direction that is expected under each of the alternatives and provides a way to compare alternatives.

Under *Alternative 1* there will be no direct or indirect effects from livestock grazing once livestock are removed from the allotments. On impaired soils, removal of grazing impacts would allow vegetation to recover, resulting in positive gains in plant vigor, plant frequency, and groundcover. The potential increase of vegetation groundcover and loss of livestock-related compaction would contribute to improved nutrient cycling and improved soil structure. Improved soil structure would contribute to the functional hydrologic condition. Given the limited extent of soil impairment on the allotments, changes in overall soil condition would be slight. The rate of soil improvements would be incremental, but faster than under *Alternative 2*.

Under *Alternative 2*, light to moderate allowable use levels are expected to provide sufficient residual biomass to protect soils. Growing season rest on nearly all allotments would allow vegetation to recover during the growing season, resulting in positive gains in plant vigor, plant frequency, and vegetative groundcover. Adaptive management built into the proposed action should allow management to respond proactively to changing resource conditions before problems occur. The proposed additional watering locations are designed to improve livestock distribution which will help minimize impacts in historic concentration areas. However, it will increase use in historically underused areas and therefore potentially impact the soil conditions in these areas. Short term soil disturbance may occur during the placement or construction of proposed range improvements, but these would not be sufficient to affect soil quality ratings. The use of Best Management Practices (BMPs) is expected to minimize or mitigate any potential negative effects from this alternative.

Cumulative Effects – Soils and Watershed.

The cumulative effects analysis area for this resource is the three watersheds in which the allotments are located: Animas Valley (HUC 1504000304), San Simon River Headwaters (HUC 1504000601), and Upper San Bernardino Valley (HUC 1508030202). The project area only comprises 4% of the total area of these watersheds. Activities within the watersheds include farming, ranching and low density development. These activities affect soil and watershed condition where they occur, but because soils and watershed are stable on the Forest, the proposed action is not expected to contribute measurably to these ongoing activities. The Forest is involved in an active fire management strategy in association with the Malpais Borderlands Group and other partners. Over the term of the authorizations, several prescribed fires are likely to occur. These fires are likely to reduce woody tree canopy (and woody fuels), resulting in a more open landscape with a more dense herbaceous understory. Fires may result in short-term soil disturbance immediately following burning; however, long term effects would be to increase soil stability through increases in herbaceous cover. Both alternatives would contribute to fire effects by leaving sufficient herbaceous biomass to support prescribed fire. Prescribed fires are unlikely to contribute significant negative effects because fire intensity can usually be controlled through the prescription. Grazing is typically deferred in burn areas at least one growing season prior to and one growing season after burning. Smuggling and interdiction activities will continue to result in small areas of soil disturbance associated with foot trails and off-road travel. Because the alternatives are not expected to result in significant direct or indirect effects, they should not contribute significant cumulative effects to these ongoing and future activities.

Upland Vegetation

The Coronado Forest Plan goal for rangeland condition is to restore rangeland to at least moderately high ecological condition with stable soil and a static to upward trend (PR 1, p. 10). Grazing by domestic livestock can impact vegetation by changing the composition of species in the plant community being grazed, by changing the density and frequency of perennial herbaceous plants, and by changing the vigor of grazed plants. The combined attributes of plant composition, density and vigor are used to estimate the ecological condition and trend of rangeland plant communities and evaluate the effects of grazing on vegetation. Ecological condition is an evaluation of the status and composition of the plant community relative to the potential natural community for the site. Trend is an expression of the plant community's movement toward or away from the potential natural community over time. Plant species composition is compared to an expected value for the potential plant community to derive a similarity index. The potential plant community is identified using Natural Resource Conservation Service (NRCS) ecological site guides for a variety of soil types. The project area falls within the NRCS Mexican oak-pine woodland and oak savannah land resource unit (41-1AZ) in the 16-20 inch precipitation zone.

Processes other than grazing also affect rangeland vegetation condition. In the Peloncillo Mountains, these include short and long term fluctuations in rainfall patterns and fire. The presence of non-native species will lower vegetation condition ratings because non-

native species are not included in condition scores. Lehman lovegrass, a non-native perennial, is present in the project area, but not in significant amounts.

Affected Environment

For the purposes of determining rangeland condition, permanent vegetation monitoring transects were evaluated in 2007 using the Frequency/Dry Weight Rank methodology (ITR 1996) (PRs 16-21). Production and utilization data for the Deer Creek, Skeleton, Fairchild and Juniper Basin allotments were also collected in 2006 and 2007 (PRs 13-15), and were used to supplement condition and trend information in the analysis.

Skeleton and Fairchild. Rangeland condition was evaluated at four locations in 2007 (PRs 16, 20). One site was rated in fair condition, one site good and two sites in excellent conditions. Trends are largely upward based on increases in ground cover.

Graves. Rangeland condition measurements indicate excellent condition based on plant composition and upward trends based on groundcover measurements (PR 17).

Outlaw Mountain. Rangeland condition measurements indicate excellent condition based on plant composition and upward trends based on groundcover measurements (PR 21).

Juniper Basin. Rangeland condition at three locations indicated good condition on two sites and excellent condition on one site (PR 19). Trends are stable or upward based on increases in ground cover and decreases in bare ground compared to previous assessments.

Deer Creek. Data collected at four monitoring locations indicate excellent condition in three locations and good condition at the fourth (PR 18). Trend on three of the four sites was up based on measurements of groundcover.

Skull Canyon. No condition and trend data are available for this allotment. However it is a small (75 acre) allotment with very limited permitted use (7 head). Because there are no waters and no fence, livestock use is irregular and light (PR 12). Based on this limited use, ecological conditions are estimated to be similar to the other allotments in the area (good to excellent condition).

Environmental Consequences

Utilization by grazing animals affects vegetation composition and productivity. Defoliation on a repeated basis (frequency), in excessive amounts (intensity) or for extended periods without recovery (duration) can cause changes in the vigor of preferred forage plants. Numerous analyses of grazing intensity (Holechek et al 2000, 2004, PRs 24, 25) have demonstrated that heavy grazing (>50-60% utilization) will negatively affect vegetation composition and productivity, but that light to moderate grazing (<45% utilization) can maintain or improve these vegetation attributes in semi-desert grassland and oak woodland plant communities found in the project area. Vegetation condition can be improved through reductions in the intensity of utilization or by increasing the amount of rest to allow for grazed plant recovery.

Under *Alternative 1*, there would be no direct or indirect effects as a result of livestock utilization. Some light use by wildlife may occur, but there are no large wild grazing herbivores in the project area, so use would be negligible. Over the long term, the effects

of this alternative would be increases in preferred forage plant frequency, plant density and plant vigor. Upland vegetation condition on the allotments is close to its ecological potential under current management and is meeting Forest Plan standards. Additional improvement may occur over time, but changes would be small and incremental. The most noticeable changes would be around waters and other areas where livestock tend to concentrate. Under this alternative, these areas would retain more herbaceous vegetation than they would under the proposed action.

Under *Alternative 2*, grazing livestock would continue to remove herbaceous vegetation. However, this level of use appears to be sustainable as shown by vegetation condition and trend data collected in 2007 and described above. Effects would occur when cattle are grazing pastures, but growing season rest and deferment would allow for recovery prior to re-use. Over time, improved water distribution and flexible stocking rates, combined with the mitigation features proposed should allow for increases in plant vigor and herbaceous production, especially in areas currently receiving heavier-than-desired use. Utilization guidelines would provide for light to moderate utilization, and use across the landscape would be more homogenous. Patterns of heavy use in some locations would be reduced while use in previously lightly used areas would increase.

Lehmann lovegrass is likely to persist in the project area under either alternative, but may increase more under grazing than under no grazing. Cattle will preferentially eat native perennial grasses, allowing lovegrass to increase.

Cumulative Effects – Vegetation. Historic land use practices, especially long duration, high intensity grazing and fire suppression will continue to affect vegetation condition at some sites. Both alternatives would maintain or improve understory vegetation based on no or conservative use, and would not contribute significant cumulative effects to conditions resulting from past practices. Future prescribed fires, if they occur, are expected to result in an increase in the frequency and vigor of herbaceous plants and a reduction in woody species, which should contribute positively to vegetation condition. Both alternatives will provide sufficient herbaceous material to support prescribed fires and contribute to a more natural fire regime.

Riparian Condition

Affected Environment

There are numerous drainages in the analysis area, but none of these support perennial flows. Most channels sustain brief surface flows after summer rains, and sub-surface flows sustain areas of riparian vegetation. There are no mapped wetlands in the allotments (National Wetlands Inventory, 1977). Permanent water is limited to a handful of man-made stock ponds.

Riparian conditions in the analysis area were last evaluated in 1999 using the Riparian Area Survey and Evaluation System (RASES, USDA-FS 1989). These data indicate that riparian areas are meeting or moving toward Forest Plan goals for riparian condition (Table 8). Recruitment of riparian vegetation is good and plant vigor is fair to good. Vegetative bank protection is somewhat below the Forest Plan standard of 60 percent cover, based on the 1999 data. Cottonwood Canyon, Skeleton Canyon, South Fork

Skeleton Canyon, South Deer Creek, and Horse Camp Draw all have roads located in the channels, which reduces the opportunity for vegetation and channel development.

Table 8. Summary of RASES data for stream channels in the project area.

Allotment	Stream Name	Percent Canopy	Vigor	Percent Vegetative Bank Protection	Tree Recruitment (No. of seedlings compared to total species)
Deer Creek	South Deer Creek	40%	Fair	48%	2 of 3
Juniper Basin	Horse Camp Draw	50%	Good	50%	4 of 5
Outlaw Mountain	Cottonwood Creek	40%	Fair	21%	4 of 4
Skeleton Canyon	Skeleton Canyon at Devils Kitchen	40%	Good	37%	3 of 3
	South Fork Skeleton Canyon at Big Tank	50%	Good	43%	2 of 3
	South Fork Skeleton above Big Tank	50%	Good	0% (bedrock)	3 of 4

Environmental Consequences

Under *Alternative 1*, sites would continue to meet Forest Plan standards for riparian condition. Sites that are currently grazed would be expected to show measurable increases in vegetation cover and litter. Channels with less than 60 percent vegetative ground cover would be expected to move toward that standard. The rate of change would depend on the potential of each site. Drainages where roads are located in the channel would continue to be effected by vehicle traffic to some degree.

Under *Alternative 2*, riparian condition would, in general, be expected to remain static or improve over the long term as a result of the emphasis on dormant season (winter) grazing use. However, grazing, even during the winter, would remove herbaceous vegetation that would otherwise remain on the site and provide bank protection. Therefore, herbaceous vegetation and litter would not increase as rapidly as under *Alternative 1* and herbaceous bank protection would likely be lower relative to no grazing. Tree recruitment would remain similar to current levels. Effects of the implementation of the proposed action are summarized below by allotment. The Graves and Skull Canyon allotments do not contain riparian areas, so no effects would occur on these allotments.

Fairchild and Skeleton Canyon. – Skeleton Canyon and South Fork Skeleton Canyon will have improved ground cover including bank vegetation because of the emphasis on dormant season use. Riparian species regeneration will also improve as a result of non-growing season use.

Outlaw Mountain. – Cottonwood Canyon will have improved ground cover including bank protection with winter only grazing. Riparian vegetation, especially trees may improve, but the establishment of new trees is highly dependent upon sufficient rainfall to create appropriate growing conditions.

Deer Creek. – South Deer Creek will have improved ground cover including bank vegetation due to winter use and the two pasture rotation. Riparian species regeneration will also improve. Conditions will improve at a slower rate, or remain static until the new water developments and consistent pasture rotations are implemented.

Juniper Basin. – Riparian conditions will remain static or improve slightly.

Cumulative Effects - Riparian. Trails, roads and dispersed camping areas are often located in or near riparian areas. These uses are generally light in the project area, but where they occur, result in channel alteration and impacts to riparian vegetation. However, the effects of the alternatives are minimal and largely beneficial, so they would not be expected to contribute significant cumulative effects to ongoing minor disturbance.

Water Quality and Quantity

Affected Environment

Water Quantity. The project analysis area is located within three Fifth Code Watersheds: Upper San Bernardino Valley (1505030202), Animas Valley (1504000304), and San Simon River Headwaters (1504000601) (Figure 7). Combined, these watersheds encompass over 870 square miles. Approximately four percent of the watersheds occur on the Forest. Total surface water yield (water quantity) is controlled by annual precipitation and the type and density of vegetation on the landscape. Watersheds within the project area yield, on average, an estimated 1,025 acre feet of water per year (PR 44). Several dirt stock tanks throughout the project area capture and retain a small portion of overland water flow that occurs during intense summer storms. This overland flow is water that would otherwise flow off of the Forest or percolate into the ground downstream. Wells in the project area tap into ground water, which does not contribute to base flow in streams.

Water Quality. Water quality is assessed by comparing existing conditions with desired conditions that are set by the States under the authority of the Clean Water Act. The Arizona Department of Environmental Quality (ADEQ) is the regulating authority for water quality in Arizona. The New Mexico Environment Department (NMED) is the regulating authority in New Mexico. The general classifications used to evaluate perennial surface water quality are 1) attaining, 2) impaired and 3) not assessed. Water quality has not been assessed within the project area; as noted previously, perennial surface water does not occur in the area. No issues related to water quality have been documented in the project area. The project area is not identified as a Unique Water by either state.

Environmental Consequences

Surface water quality and quantity are affected by hydrologic function, which is the ability of soil to capture, hold and release water. As soil conditions degrade, the time that water sits on the land decreases, resulting in a reduction of the capability to filter soluble solids and sediments. Surface water quantity (runoff) increases due to a compromised hydrologic function and water quality decreases as more sediments are carried in runoff.

Under *Alternative 1* there would be no direct or indirect effects from livestock grazing on canyon bottoms or uplands on the Forest. The potential increase of vegetation

groundcover (VGC) would contribute to maintaining an acceptable nutrient cycling and soil structure thereby promoting a satisfactory hydrologic function and reducing runoff potential. VGC also stabilizes the watershed promoting satisfactory water quality by minimizing soil loss and reducing turbidity.

Under *Alternative 2*, new pasture fencing and additional upland watering locations are proposed to improve livestock distribution which will help minimize impacts in historic concentration areas (canyon bottoms). Incremental improvements in water quality are expected based on small improvement in watershed condition. Allowable use levels of 30-45% are expected to provide sufficient residual groundcover in the uplands to protect and stabilize soils. Soil stability contributes to satisfactory hydrologic function by slowing overland flow of water, increasing infiltration and catching sediments. The result is less runoff. The use of Best Management Practices is expected to minimize or mitigate any potential negative effects from this alternative.

New stock ponds proposed in the Deer Creek and Juniper Basin allotments will intercept overland water flow that would otherwise run off into drainages. New upland waters elsewhere will be supplied using water from existing wells. Typically, the drinkers and troughs will be filled directly from the well or from a storage tank. There may be short-term draw-down on localized aquifers during the filling of new large storage tanks due to the continuous draw from a well and aquifer, but water quantity in the aquifers should not be impacted over the long term. This conclusion is based on the relatively small quantity of water needed to fill and maintain drinkers compared to the overall size of the respective watersheds and the total volume of precipitation recharging the aquifer in the watersheds above each well.

The amount of groundwater and surface water necessary to supply the needs of the proposed action is less than one percent of the total volume of water annually recharged from precipitation (PR 44). This level of withdrawal is not expected to result in significant effects to the water table. Several dirt stock tanks throughout the project area capture and retain a small portion of overland water flow that occurs during intense summer storms. This overland flow is water that would otherwise flow off of the watersheds and would not affect stream base flow or groundwater recharge. Based on this, water availability on watersheds or in aquifers in the project area would not be significantly affected by withdrawal or diversion under the proposed action.

Air Quality

Affected Environment

The project area is in a Class II air shed. Air quality in and around the area is high due to the limited access, good vegetative ground cover, and the large scale of the analysis area. Currently, the air quality in the project area is within the standards and guidelines of the Forest Plan.

Environmental Consequences

Activities resulting from the proposed grazing authorizations will not significantly affect the factors contributing to a high quality air shed. Therefore, grazing will not have direct, indirect or cumulative effects on the air resources in this air shed.

Special Management Areas

Affected Environment

The project area does not contain designated wilderness, eligible wild and scenic river segments, research natural areas, zoological botanical areas or other areas that would require special management by regulation or Forest Plan direction. The Guadalupe Canyon Zoological Botanical Area (ZBA) is located in the southern portion of the Peloncillo range; however it is approximately five miles away at its closest point and outside of the influence of project activities. The effects of livestock grazing authorizations on the Guadalupe Canyon ZBA were previously analyzed in the South Peloncillo Mountains Grazing Environmental Assessment (USDA-FS 2008).

Portions of the project area fall within mapped inventoried roadless areas (Figure 9). Inventoried roadless areas are managed to preserve their roadless characteristics (FSM 1925.03, WO Interim Directive 1920-2006-1). Roadless area characteristics are defined in the 2001 Roadless Rule (36 CFR Part 294, Subpart B) as the following: (1) High quality or undisturbed soil, water and air; (2) Sources of public drinking water; (3) Diversity of plant and animal communities; (4) Habitat for threatened, endangered, candidate and sensitive species dependant on large, undisturbed areas of land; (5) Primitive, semi-primitive non-motorized and semi-primitive motorized classes of dispersed recreation; (6) Reference landscapes; (7) Natural appearing landscapes with high scenic quality; (8) Traditional cultural properties and sacred sites; and (9) Other locally identified unique characteristics.

Environmental Consequences

Neither alternative would result in the construction of new roads or the maintenance or reconstruction of existing roads within inventoried roadless areas. The construction and placement of proposed water facilities is likely to require limited cross-country travel in order to transport equipment and materials into remote sites that are not accessible by roads. Such travel would typically be limited to a single trip into and out of a site by a dozer or back hoe. These activities would not result in the creation of any new roads, but would be expected to result in short term soil and vegetation disturbance in the small areas where equipment is operated. Managed seasonal livestock grazing will continue within portions of the IRAs at moderate levels under the proposed action. As documented elsewhere in this analysis, the limited intensity and duration of grazing is not expected to result in adverse effect to soil, air, water, wildlife and plants, or traditional cultural properties.

There will be no direct, indirect or cumulative effects on the roadless status of the inventoried roadless areas. Effects to the roadless characteristics of the IRA would be limited to short term soil and vegetation disturbance. None of the other IRA characteristics would be affected. No other activities have been identified that would contribute significant cumulative effects to the effects of the proposal.

Heritage Resources

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”). Less than 2% of the project area has been surveyed for heritage resources, and only four historic properties have been previously documented. Six new sites were identified during field work for this analysis in 2008 (PR 47). To date, no specific Traditional Cultural Properties have been identified in the area. Additional undocumented sites no doubt occur throughout the area.

Native American sites that pre-date European contact include artifact scatters that represent temporary campsites or resource processing locations, small villages consisting of the remains of buried pit structures, more expansive habitation sites with vestiges of adobe architecture, and rock shelters. A few large habitation sites located just beyond the Forest boundary have been the subject of archaeological excavations that have played important roles in understanding the region’s prehistory.

At the time of European contact, various bands of Apaches were the primary groups of Native Americans in the area. They appear to have gained an increased presence in the area at some point near the end of the prehistoric period and remained a dominant force from the Spanish Colonial Period through the 1860s. The Geronimo Surrender site is purported to be located in Skeleton Canyon, just inside the Forest boundary, but the exact location has not been identified. The most important historic-period use of the area has been grazing, which began in Spanish Colonial times and continues to be the predominant land use activity.

Few of the heritage resources documented within the allotments have been formally evaluated for National Register eligibility, but all will be treated as eligible for management purposes.

Environmental Consequences

Construction of range improvements can directly damage artifacts or structures and alter their spatial relationships, while also encouraging concentration of livestock in the vicinity of the improvements. Concentration of livestock on archaeological and historical sites can also result in damage to artifacts and structures, and alteration of their spatial relationships. These impacts can compromise various aspects of the integrity of historic properties and diminish their research and interpretive potential.

Under *Alternative 1*, no direct or indirect effects from livestock grazing on heritage resources would occur following removal of cattle from the allotments. Under *Alternative 2*, administration of rangeland resources and implementation of structural improvements will only occur in conformance with the *Standard Protocol for Rangeland Management* developed pursuant to Stipulation IV.A of the *Region 3 First Amended Programmatic Agreement Regarding Historic Property Protection and Responsibilities* (PR 48). Under this protocol, range improvements and other ground-disturbing activities will be analyzed for effects to heritage resources prior to implementation. This process is included as a management practice in the proposed action in Chapter 2. Implementation of these

mitigation measures would insure that there would be no adverse effects to heritage resources as the result of new range improvements.

A heritage resources report has been prepared and submitted for consultation with affected tribes and the Arizona and New Mexico State Historic Preservation Officers (SHPO). Arizona SHPO concurrence was received on June 27, 2008.

Socio-economics

Affected Environment

All of the allotments are located entirely or partially in Hidalgo County, New Mexico or Cochise County, Arizona. Between 1990 and 2000, Cochise County reported gains in employment related to tourism and financial services. During the same period, Hidalgo County experienced a drop in total employment (University of Arizona 2005). Low per-capita income and high rates of poverty make Hidalgo County one of the most economically challenged in New Mexico. Ranching operations in the area tend to be characterized by small profit margins with the need for off-ranch supplemental income to continue operations. Farming and ranching are traditional uses in both counties. In 2000, farm employment accounted for 3% of total employment in Cochise County and 13% of total employment in Hidalgo County (Headwaters Economics 2007a, 2007b).

The economic effects of the proposal were not identified as a key issue for the analysis. Specific operating costs and revenue estimates are not available for the allotments, and weather, market conditions and business and management decisions will affect net revenue on an annual basis. Nevertheless, the economic considerations of the alternatives can be compared in terms of the costs of implementation, the costs and revenues to the permittees and the return to the Federal government through grazing permit receipts. Costs and benefits are incurred by both the Federal government and the permittees, and not all participants recover their costs.

The analysis does not include certain costs or benefits incurred by the alternatives, such as costs and benefits relating to recreation opportunities, environmental quality, etc. Data to analyze these costs and benefits are not available at the allotment level; analysis at the District or Forest level is beyond the scope of the analysis.

Environmental Consequences

Decisions relative to livestock grazing on individual allotments primarily affect 1) the permittees, who pay grazing fees and receive economic returns on their investments in livestock grazing and who contribute funds for the construction of range improvements, and 2) the Forest Service, which collects grazing fees and expends grazing receipts and appropriated tax dollars to construct improvements and to administer the allotments. Local communities may also benefit indirectly from the sale of goods and services associated with ranch operations.

Costs. Costs associated with the project include the costs of proposed improvements and ongoing administrative costs associated with permit administration. *Alternative 1* would have the lowest cost as no new improvements would be authorized and only limited maintenance would occur. There would, however, still be costs associated with management of the allotments. Maintenance or removal of existing structural

improvements may become necessary and costs would be borne by the Forest Service. Allotment boundary fence maintenance would be shifted from the permittees to the Forest Service. Under *Alternative 2*, there would be costs associated with the construction of new improvements. Improvements have been identified as possible practices as part of an adaptive management strategy. Based on the results of monitoring, some improvements may be determined to be unnecessary. Therefore specific costs are difficult to predict. Typically, improvements are constructed on a cost-share basis between the Forest Service and the permittee. Combined, improvements costing in excess of \$100,000 have been identified for the allotments (see proposed action, pp. 11-12). Clearly, the costs associated with full implementation of *Alternative 2* would be much greater than the costs of no action. It is highly unlikely that Forest Service funding levels would be sufficient to implement all improvements, even on a cost share basis. It is likely that permittees would be required to bear a larger portion of improvement costs, or pursue alternative sources of funding, such as grants.

One comment on the EA (PR 69) expressed doubt that future Forest Service funding levels would be sufficient to support the monitoring activities proposed and questioned whether the costs of monitoring would exceed revenues. Monitoring activities identified consist largely of activities already being carried out under current staffing and funding levels. The analysis assumes that these levels will continue and that staffing and funding will be sufficient to accomplish continued monitoring. Detailed cost estimates for monitoring these allotments have not been developed and the economic effects of the proposal were not identified as a key issue for the analysis. It is well documented that, nationwide, the costs of administering livestock grazing programs exceed the receipts to the government by a significant amount (GAO 2005). However, grazing fees are set by Congress and are beyond the scope of this decision. Any analysis of future significant changes in funding levels would be too speculative to be meaningful.

Revenues. Net ranch income represents gross returns minus operating costs. As noted, specific operating costs and revenue estimates are not available for each ranch. Nearly all of the allotments are small, seasonal allotments that are used in combination with other ranch lands off of the Forest. Nevertheless, termination of the grazing authorizations under *Alternative 1* is likely to have significant economic effects on the individual permittees. Although they would no longer pay grazing fees or expend money to maintain and construct improvements, the permittees would not have access to forage on federal lands with which to generate income from livestock production.

Forest Service receipts, primarily grazing fees, for all of Hidalgo County averaged \$8,900 between 1986 and 1999 (University of Arizona 2005). The Hidalgo County allotments in the project area (Deer Creek, Skull Canyon and Juniper Basin) likely contribute 20-30% of this average. Under *Alternative 1*, the Forest Service would not receive annual grazing fee payments. These would continue under *Alternative 2*, but would vary based on annual stocking levels and Forest Service grazing fee levels.

Money generated within a community by permittees purchasing goods and services continues to circulate and accounts for indirect contributions to the local economy. Under *Alternative 1*, these economic contributions are likely to be reduced. These expenditures would continue at current levels under *Alternative 2*.

Economic Viability. The need to maintain the economic viability of ranches in the analysis area was identified as an issue during previous analyses of neighboring allotments in the Peloncillo Mountains (USDA-FS 2008). The economic viability of individual ranches or the ranching community at large is subject to a variety of influences. Market fluctuations, weather, rancher management decisions, ranch expenses and the availability of other sources of income could all affect the economic viability of individual ranches. These factors are beyond the control of the Forest Service and beyond the scope of the decision being contemplated. On ranches where the Forest Service lease comprises a significant proportion of the forage base, *Alternative 1* could affect the economic viability of the ranch. Under *Alternative 2*, no significant changes in permitted use are proposed and actual use is expected to remain similar to recent past use; therefore the proposed action is unlikely to affect the economic viability of individual ranches. The moderate stocking and utilization rates proposed are consistent with existing research that indicates that such practices can optimize financial return over the long term (PR 25, 61).

Environmental Justice

Affected Environment

Environmental justice (EJ) is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Toward attaining EJ for all communities and persons in the United States, Executive Order 12898 (February 11, 1994) directed all Federal agencies to evaluate their proposed actions to determine the potential for disproportionate adverse impacts to minority and low-income populations.

In the memorandum to heads of departments and agencies that accompanied Executive Order 12898, the President specifically recognized the importance of procedures under NEPA for identifying and addressing environmental justice concerns. The memorandum states that “each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by [NEPA].”

Environmental Consequences

No EJ concerns were identified during the public involvement phases of this project. Implementation of either of the alternatives evaluated in this EA would not result in adverse impacts to environmental resources and socioeconomic conditions. The ranching operations are not a significant source of employment for low income or minority communities. Therefore, disproportionate direct, indirect or cumulative adverse impacts on low income or minority populations would not occur.

CONSULTATION AND COORDINATION

In addition to the affected permittees, the Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment. Complete lists of all participants, including tribes and individuals, is found in the project record (PRs 33, 47).

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Rick Gerhart, Team Leader	Writer/Editor, Wildlife
Joseph Harris, Range and Watershed Staff, Douglas Ranger District	Proposed Actions, Vegetation analysis
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Salek Shafiqullah, Hydrologist	Soils/Watershed Analysis
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FEDERAL, STATE, AND LOCAL AGENCIES:

Arizona Game and Fish Department
 Arizona Department of Agriculture
 Arizona Department of Environmental Quality
 Arizona Cooperative Extension Service
 Arizona State Land Department
 Hidalgo County Commission
 New Mexico Department of Game and Fish
 New Mexico Cooperative Extension Service
 New Mexico Environment Department
 USDA Natural Resource Conservation Service
 USDI Fish and Wildlife Service

OTHERS:

Forest Guardians	Center for Biological Diversity
Bootheel Heritage Association	Coalition of Arizona and New Mexico Counties
GRATA	Hidalgo County Public Lands Committee
Hidalgo County Cattle Growers	Arizona Cattle Growers Association
New Mexico Cattle Growers	Malpai Borderlands Group
People for the USA, Arizona	New Mexico State University
Farm Credit of New Mexico	Western Watersheds Project

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PUBLIC COMMENTS ON THE EA

In accordance with regulations at 36 CFR 215, the environmental assessment (EA) was made available for a 30-day public comment period between October 2 and November 3, 2008. Two comments were received. These comments are summarized below, along with a Forest Service response in italics.

Arizona Department of Environmental Quality (PR 68).

ADEQ encourages the use of best management practices in keeping with Arizona Administrative Code R18-9-501.

This comment has been addressed. Best management practices for soil and water are included in the proposed action and project record as attachment C of PR 46.

ADEQ is please with the ongoing monitoring and the adaptive management methods that allow the Forest Service to adjust timing and occurrence of cattle grazing...based on monitoring analysis. ADEQ supports the proposed action provided that applicable BMPs are implemented as needed using the adaptive management approach and ranchers maintain existing improvements.

This comment is supportive. The EA indicates that facilities will be maintained as part of the proposed action.

Western Watersheds Project (PR 69).

Unfortunately, this Forest Service managed landscape exudes a general atmosphere of neglect. Roads criss-cross everywhere in the lower, flatter areas, and ATV use is plainly evidenced right past the small signs that indicate it is prohibited. Roads that are open for use are unmarked and poorly maintained, and I have never seen a trailhead in the Peloncillos that is marked. Most trails have been transformed into small roads for rancher access, anyway, and only lead to salt licks or stock ponds, neither of which a recreational visitor on foot would ever want to go to. Perhaps most noticeable however are the cows. Where they have been they leave a dusty landscape littered with dung; when a visitor can find an area where they have not been, grass is tall and robust.

The proposed action is to implement managed livestock grazing. The management of roads and ATVs is beyond the scope of this decision. The mere presence of cattle or cattle dung is not an issue.

The cumulative effects of a century of grazing need to be discussed in detail, as well as the concomitant impacts that come with grazing, such as predator control, ATV use, and water developments.

Cumulative effects are summarized by resource in Chapter 3 of the EA and in a variety of specialist reports in the project record. No Forest Service sponsored predator control is proposed, nor has it occurred historically. Predator hunting is regulated by the states of Arizona and New Mexico. The effects of water developments are analyzed in Chapter 3 of the EA.

We also believe that the appropriate analysis has not yet been conducted, and this environmental assessment is premature. For example, we do not see much evidence of analysis into the history of the livestock use of the area. We do not see the monitoring results that justify your claims that this area is improving, nor do we see any reason to suggest that monitoring will continue as this document suggests.

The purpose of NEPA is to analyze and disclose the effects of a proposed action. An environmental assessment is the appropriate analysis tool (40 CFR 1508.8) to determine whether

significant effects are anticipated. The history of livestock use is germane only to the extent that historic use contributes cumulative effects. The analysis acknowledges that historic livestock use has occurred (EA at 17). Resource monitoring results are found in numerous places in the project record and are summarized by resource in the EA by resource. Copies of documents in the project record are available on request.

The document claims that selecting the “no grazing” alternative will lead to negligible changes in riparian condition, but continuing grazing will lead to “improved” ground cover. It also states that Allotment Management Plans will be prepared, but does not offer them, even though they are crucial toward understanding this plan.

Regarding riparian condition, the EA states that incremental changes in riparian condition would be difficult to measure (EA at 40). Upland vegetation monitoring data in the PR indicate that conditions have improved under recent management. The EA accurately states that proposed levels of use are sustainable, based on recent monitoring results (EA at 38). The EA has been revised to clarify the conclusions of the riparian specialist’s report.

Consistent with FS manual and Regional direction, AMPs are written subsequent to the NEPA-based decision (EA p. 10).

The EA states that new water sources “may” be needed, but does not tell us what conditions will determine that or where those water sources will be found. The EA tells us there is a need to eliminate grazing from certain areas, but again does not reveal where those areas are. The document does not tell us how we will know if the plan is meeting Forest Plan standards.

The nature and locations of proposed improvements are described in the proposed action (EA pp. 11 and 12) and shown in Figure 9. Forest Plan direction is to eliminate grazing from areas not capable of supporting livestock (EA at 4). Capable rangelands are defined on page 3 (footnote 3) and shown in Figure 8. Non-capable rangelands are largely ungrazed under current management; therefore, the need to eliminate grazing from these areas was not identified as an issue. Desired conditions are tied to Forest Plan standards (EA pp. 8-9). Monitoring actions are described for each desired condition statement (EA at 9).

Instead, the EA seems to authorize a kind of “seat of the pants” management scheme that contains virtually no restrictions at all. The Forest Service apparently plans to authorize grazing “under an adaptive management strategy under which the duration and timing of grazing, as well as annual stocking rates, would be continually modified in response to changing resource conditions.” This appears to be an anti-plan, a plan to do everything later, based on information that you have not described, and this information-gathering based on funding that likely will not exist (and probably does not even exist now). What kinds of things have prevented you from adapting to changing resource conditions in the past? Have you found yourselves forbidden from reducing livestock numbers because of the drought? Or forced into any other corners? Whence comes this new need for additional flexibility?

The terms and conditions that define the authorizations are identified in the proposed action, as are the monitoring actions that will be used to monitor implementation and effectiveness. As described in the EA, the adaptive management strategy is prescribed in agency directives cited in the EA. Rangeland resources have traditionally been managed under an adaptive strategy. This proposal formally adopts this strategy consistent with current directives, discloses to the public the Forest’s intent to implement adaptive management, and identifies the objectives, terms and conditions, and monitoring strategies to be used.

And why the reluctance to describe what those “changing resource conditions” might be that would trigger this flexibility clause? What about the changing resources available to the agency in terms of funding? How will decreased funding affect your decisions about how and when and

where to graze livestock, absent a strong plan that tells us what to do? It appears to us that the Forest Service has always had the flexibility to reduce numbers or increase protection of the landscape, and now is asking for flexibility to go the other direction. It seems that *decreasing* protection is where the agency lacks flexibility, and seeks it now.

Language has been added to the proposed action to respond to the first question. Resource conditions that would affect management decisions are described in the EA beginning at the bottom of p .9. Decisions on livestock management will be based on monitoring of resource condition, not funding levels. The EA acknowledges that Forest Service funding may not be sufficient to implement all improvements (EA at 11).

The EA states that "on all allotments, the sequence and timing of pasture moves will be based on monitoring of range readiness, ecological condition, and utilization." But you have not explained how this monitoring will occur, how often, or what happens when it does not occur. What then?

The proposed action (Monitoring, EA pp. 14-15) defines what, when, where and how monitoring will be conducted. Monitoring is part of the proposed action and is necessary to implement adaptive management. It is not optional. NEPA does not require speculative analysis of any and all possible future occurrences.

Moreover, the monitoring itself does not always seem to ensure that the objectives will be met. For example, you state that you will manage upland forage in order to "protect plant vigor, provide herbaceous residue for soil protection and to increase herbage producing ability of forage plans." To accomplish this, you plan to check "key areas" for "key species" annually for a 30-45 percent use. Will you really do this annually? What if you don't? What evidence do you have to suggest that your key species in your key areas will serve as proxies to protect what you aim to protect? Have you checked this in the past? What has the Blair Well project taught you?

The text is accurate as written. As noted previously, monitoring is not optional. Key areas are used to monitor utilization, which is implementation monitoring. Utilization levels identified are based on a review of the literature on the effects of controlled grazing on forage plant growth and production and soil condition (PR 25) and the experience of Forest Service range management specialists. Utilization is not an objective, but is one tool (along with stocking rates, season of use, timing, duration, etc.) that can be used to achieve the desired objectives. Achievement of objectives will be measured using effectiveness monitoring that provides measurable information on vegetation and soil condition or other parameters. The reference to the Blair Well project is unclear. Possibly, this refers to a photograph found in the book Welfare Ranching (Island Press, 2002) identified as the Blair exclosure. The photo shows an area where bear grass cutters have been and attributes the damage to overgrazing.

You state that even your key areas "may be abandoned." What would trigger this, and what would cause you to replace them? Given your repeated statements that you plan to conduct your utilization studies "with consideration" for the *Principles of Obtaining and Interpreting Utilization Data* paper, you need to clarify this. We have been asking you in every comment letter what you mean when you say this and how you are going to use this paper's recommendations, but to date you have never explained yourself. We also note that you are granting yourself the authority to "abandon" key areas, but you don't say under what circumstances. Since the *Principles* paper suggests you need multiple years of data before you do anything with them, it seems that your entire utilization monitoring scheme is a giant house of cards—you can move the key areas around every few years and nothing will ever happen, no matter what your monitoring information might be telling you.

Key areas are selected to be reflective of current management and use within a pasture. Most commonly, key areas require modification when management actions such as a new water or

fence result in changes in how livestock use a pasture. In other cases, natural events such as fire or woody plant encroachment cause changes in plant composition and, again, subsequent changes in livestock use. When it is determined that key areas are no longer representative of current management and use, the old key area may need to be abandoned and a new key area established.

A copy of the "Principles" paper has been provided to Mr. Ryberg previously. The conclusions of this paper are summarized on p. 12 of the paper. These conclusions and the supporting science on which they are based provide a good summary on how utilization data are used.

You say that "during drought, the Forest implements drought policies." EA at 22. What are those policies exactly? We do not believe they are sufficiently articulated as to be a reliable predictor of actions you will take.

The Forest drought policy and the R3 Drought Guidelines (FSH 2209.13, R3 Supplement 2209.13-2006-1) are found in the PR at 63. The policies identify criteria for evaluating drought status and possible actions to respond to drought, including de-stocking and re-stocking during and after drought. Copies are available on request.

Why do you say that "there is a small likelihood that [jaguar] will occur in the project area?" These animals have been spotted twice in the last ten years and they are extremely difficult to find. Surely their previous presence would suggest they will continue to appear?

The quote is taken out of context from a paragraph confirming that suitable habitats exist in the project area. The analysis actually states that "a jaguar or jaguars are reasonably expected to occur in the project area in the next ten years" (EA at 23). Given the rare and irregular occurrence of this species in the area, the likelihood that the species will occur in the future is accurately characterized.

Why is there no discussion of invasive species? Why do you not believe that to be a potential threat from continued livestock grazing?

Lehmann lovegrass has been identified in small amounts in some of the monitoring transects (EA pp. 37-38), but not to the degree that its presence influences rangeland condition. No other invasive plants are known or suspected in the project area. The effects analysis on P. 38 has been amended to include a brief discussion of the effects of lovegrass.

We are also concerned about impacts to sensitive species like the Lesser long-nosed bat, Mexican longnosed bat, and Chiricahua leopard frog, as well as the other sensitive plant and wildlife species listed in the document. We do not understand the failure to take a more careful look at the impacts to agaves, for example, for the purpose of protecting the bats and meeting your statutory and Forest Plan requirements. Given that there have been "may affect" determinations for some of these species, we believe that the relevant Biological Opinions and biological evaluations must be released before the public can be expected to comment adequately on impacts to wildlife and sensitive plants. Also, your promises regarding the Chiricahua leopard frog seem hollow. You state for example that "there are no known occupied habitats in the project area; therefore no livestock use will occur where the species is present." But since you admit that you have not surveyed the whole project area, that conclusion is demonstrably untrue. In any event, *something* extirpated or nearly extirpated the leopard frog from these mountains, so how is continuing to do what you've always done any improvement?

A biological assessment (PR 53) was prepared and submitted to the US Fish and Wildlife Service for consultation. A biological and conference opinion was completed in August 2008 and is included in the PR at 62. Other wildlife specialist reports are included in the PR. These documents are available on request; however, there is no requirement to release these to the

public unsolicited. Permittees were provided the opportunity to request applicant status, but no requests were received (PR 52).

Regarding the Chiricahua leopard frog, this species requires permanent pools or ponds for breeding. The analysis indicates that permanent water necessary for habitat is lacking on the allotments. All known suitable and historic habitats in the Peloncillo Mountains were surveyed for CLF in 2008; however, no sites within the project area were identified as potentially suitable (i.e. they do not have permanent water), so they were not surveyed. Regardless, the Forest's CLF management guidelines will be implemented to insure detection of frogs prior to any disturbance in suitable habitats (the few semi-permanent stock tanks on the allotments). The 2008 survey results were not available until November 2008. A copy of the surveys has been added to the project record as PR 70, but the survey data do not change the results of the analysis in the EA..

With respect to the New Mexico ridge-nosed rattlesnake, you need to read and disclose the USFWS's consultation before, not after, you sign this decision notice.

See above.

We do not understand how grazing can occur at capacity if there is no water in the area. Cows need water to live. If there is no natural water in the area, then should it not be unsuitable for grazing?

The EA does not state that there is no water in the area. Numerous facilities exist in the allotments and seasonal water is available most years. The need for additional waters is identified in the purpose and need (EA p. 2). Existing waters are described in the detailed proposed actions and shown in allotment maps in the PR.

As for your "developments," it is not enough to simply assert that this document grants you authority to build them. This is not a programmatic EA you are preparing. It must have site-specific information, and the large and ambitious water developments you propose will require actual evaluation, not just an assertion that you can build them wherever you wish. (As in, "new improvements would be built to the degree necessary to maintain or achieve management objectives." EA at 5).

The quoted sentence is taken out of context from a brief summary of the proposed action. Nevertheless, it is accurate in the context in which it occurs in the EA. The entire proposed action, including details on the nature and location of proposed developments is found in the EA on pp. 8-15. The locations of proposed developments are described in the EA and shown in maps in the PR. The management practices that will be used to reduce site specific effects of developments are included in the proposed action (EA pp. 13-14).

You state that "authorized year-long grazing may be limited to seasonal use on these allotments most years." Statements like this are exactly why this EA does not meet NEPA. You are making a statement about the future that is totally unfounded in any documentary evidence. Maybe it is true, but nothing in your plan tells the public how you will make these decisions and how to hold you to them. You cannot rely on this sort of thing to justify a conclusion that there will not be significant effects from your grazing plan.

The quoted language refers to the Graves and Skull Canyon allotments (EA, top of p. 9), but is quoted incompletely and, again, out of context. The EA discloses that these allotments are both managed under year-long on-off permits and receive limited seasonal use because no water is available on the Forest (EA pp. 2-3). The proposed action indicates that this use will continue. The statement is accurate and is founded in the documented history of actual use on these two allotments.

We have asked you this repeatedly: how do you know that your 45 percent utilization vlaue (*sic*) will “maintain sufficient herbaceous stubble to provide for Montezuma quail and other wildlife that require herbaceous cover”? Will you please answer our question? The *Principles of Obtaining and Interpreting Utilization Data* paper directly contradicts your statements. Please explain who we should believe.

The 45% utilization guideline is based on research and recommendations from the Arizona Game and Fish Department and Forest Service manual supplement guidance (PRs 58, 59). We recognize that utilization is not a perfect gauge for estimating cover, since in dry years, even light utilization may reduce grass height below that needed by Montezuma quail and other species. This is precisely why we propose to implement adaptive management, so that use levels can be adjusted in order to meet resource objectives. In some years, utilization may need to be reduced to maintain adequate stubble height.

It appears your riparian data are 10 years old. Is this correct? Why are you using ten-year old data to say that "riparian areas are meeting or moving toward Forest Plan goals?"

This is correct. Riparian data are being collected in the Peloncillo Mountains this year, but these data were not available for this analysis. The Forest hydrologist and district range staff did not report riparian concerns during extensive vegetation and soil monitoring in 2007-2008.

Your Economics section states that annual grazing receipts from this plan would be up to a maximum of about \$2,700 per year. But you do not reveal the cost to the government of implementing the monitoring and other work that will go into seeing that this plan works. Will it be more or less than \$2,700/year? How much more? How much will it cost?

Detailed cost estimates of this sort are not available and the economics of the proposal were not identified as a key issue. It is well documented that the costs of administering livestock grazing programs exceed the receipts to the government by a significant amount (See GAO-05-869: Livestock Grazing). Grazing fees are set by Congress and are beyond the scope of this decision. Language has been added to the Economics section to address this comment.

The single action alternative presented for this plan is insufficient, particularly given that the alternative seems to encompass every possible future change, since it envisions altering timing, use, and duration all subject to future desires and needs, which remain unstated in this document. An alternative that actually contains some kind of direction is needed—an alternative that tells the public what will happen when, and under what conditions. The current alternative only tells us that you are going to manage this area just as you please, but always with first getting permission from the local ranchers.

The proposed action meets the purpose and need and addresses the issues identified. Scoping did not identify the need to develop additional alternatives (PR 40). It goes without saying, but the last sentence reflects the writer’s point of view, not the proposed action.

Finally, given the fact that you are reauthorizing grazing for ten years over the entirety of the Peloncillo unit, and given the fact that this area is so rich biologically and has been impacted to such a degree by livestock, an EIS is necessary.

The decision framework is described in the EA. The need for an EIS will be determined in the decision notice based on the analysis contained in the EA.