Seventy Six, Two Troughs and Cedar Springs Allotment Analysis

Environmental Assessment

Forest Service Coronado National Forest Safford Ranger District November 2021

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CONTENTS

List of Tables

List of Figures

CHAPTER 1 – PURPOSE AND NEED

Background

This Environmental Assessment (EA) describes a Forest Service proposal to authorize grazing on the Seventy Six, Two Troughs and Cedar Springs allotments in the Pinaleño Mountains, Safford Ranger District, Graham County, Arizona. The EA analyzes and discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and one alternative. The purpose of the EA is to determine if the impacts of the proposed activities may be significant enough to warrant the preparation of an environmental impact statement.

Federal actions such as authorization of grazing must be analyzed to determine potential environmental consequences (National Environmental Policy Act (NEPA) of 1969; Rescission Act of 1995, P.L. 104). Supporting documentation, including more detailed analyses of project area resources and records of public participation, is on file in the project planning record in the Coronado National Forest Supervisor's Office in Tucson, Arizona.

Purpose and Need for Action

Where consistent with other multiple use goals and objectives, there is congressional intent to allow grazing on suitable National Forest System lands (Multiple Use and Sustained Yield Act of 1960, Wilderness Act of 1964, Forest and Rangeland Renewable Resources Planning Act of 1974, Federal Land Management and Policy Act of 1976, National Forest Management Act of 1976). By regulation, forage-producing lands will be managed for livestock grazing where consistent with land management plans (36 CFR 222.2(c)). Where consistent with the goals and objectives of Land and Resource Management Plans, it is Forest Service policy to make forage from lands suitable for grazing available to qualified livestock operators (FSM 2202.1, FSM 2203.1).

The Seventy Six, Two Troughs and Cedar Springs grazing allotments include land identified as suitable for grazing in the Coronado National Forest Land and Resource Management Plan (Forest Plan). All three of these allotments are currently authorized for livestock grazing and have been authorized for many years. The environmental impacts analysis of the grazing authorizations has been completed in compliance with the requirements of NEPA and Section 504 of the Rescission Act of 1995 (P.L. 104, 1995). [1]

The purpose and need is to reauthorize livestock grazing in a manner that would maintain current resource conditions where allotment conditions are satisfactory, and moves resource conditions towards meeting Forest Plan objectives and desired on-the-ground conditions

[1] Records indicate the Cedar Springs and Two Troughs allotments had Environmental Assessments completed and Decision Notices signed in 1981. In 1997, a Biological Assessment and Evaluation was completed analyzing grazing practices on Cedar Springs and Two Trough allotments to ensure consistency with the 1981 analysis, which resulted in the issuance of a new 10-year permit. The NEPA analysis for the Seventy Six Allotment was completed in 1995. This analysis resulted in a Decision Notice and Finding of No Significant Impact. An interdisciplinary approach was applied in the analysis in designing livestock management actions consistent with the Coronado National Forest Land and Resource Management Plan.

where allotment conditions are unsatisfactory. The purpose of the project is to maintain or move toward desired conditions based on the specific need statements identified below.

From the purpose, several needs arose:

- There is a need to formally incorporate additional flexibility into the management of the allotments to allow the Forest Service and individual grazing permit holders to adapt management to changing resource conditions or management objectives, and to comply with Forest Service Policy (FSH 2209.13 Chapter 90).
- There is a need to achieve better livestock distribution to maintain and/or improve resource conditions. Rangeland vegetation condition is less than desirable in some areas as a result of poor distribution and low pasture reliability.
- There is a need for additional waters to improve distribution and increase the reliability of the allotments and improve vegetation conditions. These facilities would aid in providing better distribution across the entire allotment and provide for reliability of allotment use each year.

To address the purpose and need, a Forest Service interdisciplinary team developed proposed actions for each allotment based on a comparison of existing resource conditions in the project area with desired conditions identified in the Forest Plan and through site-specific evaluation of the project area resources. Existing and desired conditions are described briefly below. The proposed action is described in Chapter 2 of this EA.

Existing Conditions

Location and Setting. The Seventy Six, Two Troughs and Cedar Springs allotments are located on the Safford Ranger District approximately 20 miles southwest of Safford, Arizona. All three allotments are located within the Pinaleño Mountains. They are bound by the Klondyke Road on the north and the Bonita-Klondyke Road on the west. The allotments are roughly bounded by private and state lands on the west, south and north, and to the east by the Pinaleño Mountains. Figure 1 shows the geographical area in and around the project area.

The three grazing allotments are contiguous and encompass approximately 15,500 acres. All three allotments have similar vegetation types including semi-desert grasslands at the lower elevations, transitioning to Interior Chaparral communities (3000 to 6000 feet), and Madrean Encinal Woodlands at the higher elevations (3,600 to 6,500 feet). Topography at the lower elevations is gently rolling foothills, bisected by several steep canyons at higher elevations. The majority of suitable and capable[2] rangelands are located on the gentler terrain at the base of the mountain range below 6,500 feet. Steep slopes and rough topography render higher elevations in the project area unsuited and not capable for grazing.

[2] Determination of rangeland capability and suitability involves the designation of areas that can support domestic livestock grazing (capability) along with an evaluation of the appropriateness (suitability) of livestock grazing in capable areas relative to all other competing resource values and management objectives. The National Forest Management Act requires the identification of the suitability of lands for resource management (16 USC 1604(g)(2)(a)). Grazing suitability is identified in the Forest Plan by Management Area. Capable rangelands are defined as areas under 40% slope and capable of producing 100 pounds per acre per year of dry forage. In addition to broad suitability designations in the Forest Plan, analysis at the project level may identify additional areas considered unsuitable for grazing.

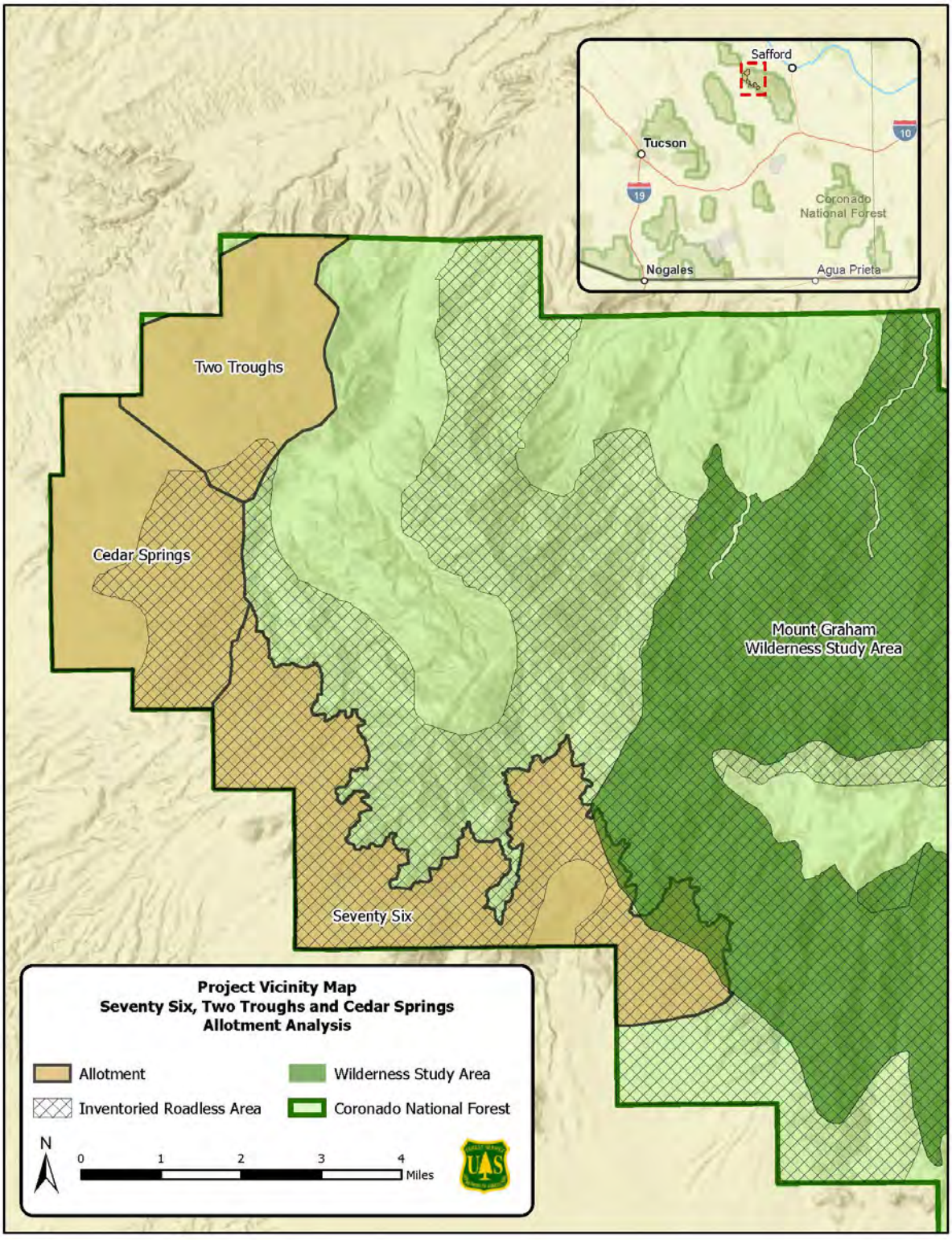

Figure 1. Project vicinity map[3]

This portion of the Pinaleño Mountains are relatively dry. A few drainages run seasonally in response to precipitation events, but there are no perennial streams in the area. There are numerous drainages in the project area, some of which support small areas of riparian vegetation within intermittent stream stretches. Taylor Canyon and Eureka Canyon are both identified by the Regional Riparian Mapping Project (RMAP) as having deciduous riparian vegetation. Taylor Canyon is referenced in map unit 180 - Fremont Cottonwood/Shrub, and Eureka Canyon is mapped in unit 270 – Sycamore-Fremont Cottonwood. A detailed general description of the vegetation types on the allotment are located in the Forest Plan and in the RMAP document for Region 3 of the Forest Service.

Resource Condition. Rangeland monitoring data have been collected periodically since the 1950's, demonstrating a marked improvement in ground cover and overall health of the resource. However, condition and trends in resource conditions are specifically looked at in more recent terms (previous 15 to 20 years) to determine the effectiveness of current management. Such monitoring in the past 20 years has also showed static or upward trends in vegetation and soil conditions. A summary of this monitoring is found in Table 1 below. There are two mapped riparian areas in the project area; monitoring from 2015 has shown both areas to have static trends with diverse age classes of obligate species.

Table 1. Allotment condition and trend summaries

Two Troughs Allotment – Key Area 1			
Year	Condition	Site Trend	Soil
2006	Mid Similarity	Static	Satisfactory
2008	Mid Similarity	Static	Satisfactory
2011	Mid Similarity	Static	Satisfactory
2013	Mid Similarity	Static	Satisfactory
2015	Mid Similarity	Static	Satisfactory
2021	Mid Similarity	Static	Satisfactory
Cedar Springs Allotment – Key Area 2			
Year	Condition	Site Trend	Soil
2008	Mid-High Similarity	Static	Satisfactory
2011	Mid-High Similarity	Static	Satisfactory
2013	Mid-High Similarity	Static	Satisfactory
2015	Mid-High Similarity	Static	Satisfactory
2021	Mid-High Similarity	Static	Satisfactory

Seventy Six Allotment									
	Mine Key Area			Babcock Key Area*			Van Valer Key Area		
Year	Condition	Site Trend	Soil	Condition	Site Trend	Soil	Condition	Site Trend	Soil
2006	Mid Similarity	Static	Sat	____	___	Sat	Low Similarity	Static	Sat
2009	Mid Similarity	Static	Sat	____	___	____	Low Similarity	Static	Sat
2012	Mid Similarity	Static	Sat	Mid Similarity	N/A	Sat	Low Similarity	Static	Sat
2014	Mid Similarity	Static	Sat	Mid Similarity	Static	Sat	Low Similarity	Static	Sat

[3]GIS products (Figures 1-4) were compiled from various sources and may be corrected, updated, modified, or replaced at any time. For specific data source dates and/or additional digital information, contact the Forest GIS Coordinator, Coronado National Forest, AZ & NM.

2018	Mid Similarity	Static	Sat	_____	____	Sat	Low Similarity	Static	Sat
2021	Mid Similarity	Static	Sat	Mid Similarity	Static	Sat	Low Similarity	Static	Sat

* The Babcock Key Area was established in 2006, but only evaluated for soil condition that year and not visited in 2009. 2012 was the first year the transect was read for condition and trend monitoring. The site was not read in 2018 due to the pasture being used by livestock prior to monitoring, however the soil was evaluated for soil condition.

Current Management. Grazing has occurred in the project area since the 1800s. Recent livestock use is shown in Table 2. All three allotments are held by the same permittee and are part of a larger ranch containing lands off-forest. A stock and monitor approach has been used to determine carrying capacity for allotments. This method considers both implementation and effectiveness monitoring to determine if management is meeting or moving toward Forest Plan standards with given stocking rates. This monitoring approach has determined that the carrying capacity on all three allotments is commensurate with natural resources and in compliance with the Forest Plan. Current management on each allotment is described below.

The **Two Troughs Allotment** consists of one pasture used by livestock during the winter dormant period and receives growing season rest every year. The main resource issues identified for this allotment are the absence of permanent water and the lack of livestock distribution that arise from having less than reliable sources of water. The lack of reliable water has been the driving factor for not stocking the allotment over the past several years. Monitoring records indicated that when the allotment was stocked, and stocked with permitted numbers, that the annual grazing intensity was light to conservative.

The **Cedar Springs Allotment** consists of one pasture used by livestock during the winter dormant period and receives growing season rest every year. The main resource issues identified for this allotment are the absence of reliable livestock water distributed throughout the allotment. The allotment has two wells that provide the majority of the water for the grazing season. The remaining water developments depend on precipitation capture and are usually dry in the winter months, thus leading to livestock distribution that is less than desirable. Monitoring records indicate that annual grazing intensity is light to conservative with permitted stocking levels.

The **Seventy Six Allotment** consists of one pasture used by livestock during the winter dormant period and receives growing season rest every year. The allotment is watered by three springs and one unreliable dirt tank, with most of the livestock water coming from South Taylor Spring. Monitoring records indicate that annual grazing intensity is light to moderate with permitted stocking levels.

Table 2. Allotment size, permitted head and season of use (shown in Animal Unit Months[4])

	Two Troughs	Cedar Springs	Seventy Six
Total Acres	3,417	4,808	7,207
Capable Acres	2,744	4,018	4,770
Permitted Use	100 Cow/Calf	150 Cow/Calf	285 Cow/Calf
Grazing Season	11/01-03/31	11/01-3/31	11/01-3/31
Permitted Use: Animal Unit Months[5]	500	750	1,425
Actual Use (By Grazing Year) (AUMs)			
2009	0	0	1,425
2010	447	0	1,425
2011	447	750	1,425
2012	0	750	1,425
2013	0	750	1,425
2014	0	750	1,425
2015	0	750	1,425
2016	238	750	1,425
2017	500	750	1,425
2018	500	750	1,425
2019	500	750	1,425
2020	250	250	500

Forest Plan Consistency and Management Direction

This Environmental Assessment (EA) is based upon background information about the allotments including current and past inventory and monitoring data, the desired condition of resources on the allotments derived from direction and guidelines in the Forest Plan, as well as from resource specialists' knowledge of the allotment. This project is utilizing the direction in the Forest Plan related to desired resource conditions and rangeland management. You can find the Forest Plan, and related documents, at: https://www.fs.usda.gov/detail/coronado/landmanagement/planning/?cid=fseprd582615.

The Forest Plan provides guidance for the management of multiple-use activities that occur within the Coronado National Forest. There are objectives, standards, guidelines, and management area direction, relevant to the project, found within the plan beginning on page 90, as well as statements related to the desired conditions for various resources such as vegetation, watersheds, riparian areas, soils, and wildlife. Grazing is one of the many uses allowed on the Forest. Forest Service policy is to make forage available to qualified livestock

[4] 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. Forage production can be variable and stocking is determined on an annual basis in response to actual use monitoring.

operators from lands suitable for grazing, provided it is consistent with the Forest Plan and meets the terms of the administrative permit. The project area (shown in Figure 1) was determined as suitable and capable for grazing.

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 would 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 would occur.

Public Involvement

On March 18, 2014, a Forest interdisciplinary team met to develop the proposed action and identify preliminary issues, concerns, and mitigation measures to carry forward into the analysis. The proposal was first listed on the Coronado National Forest's Schedule of Proposed Actions (SOPA) in April 2014, with periodic updates published quarterly.

On April 25, 2014, a scoping letter was mailed to 155 individuals and organizations to announce a 30-day scoping period. Five comment letters were received during scoping. In addition to the general scoping conducted in 2014, the current grazing permittee has been involved in the planning of the project from its onset.

On September 29, 2018, a legal notice announcing the start of the 30-day comment period was published in the *Eastern Arizona Courier*. A letter announcing the formal opportunity to comment was sent to approximately 381 individuals. One comment letter was received during the comment period.

Issues

An issue is a concern or conflict related to effects of the proposed activity. Issues are stated to capture concerns or potential impacts and are not conclusions based on the analysis in this document.

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 evidence.[6]

Using the comments from the public, the interdisciplinary team developed a list of issues to address. Public concerns were raised over the effects to soil conditions, wildlife and associated habitat, cultural resources, as well as management consideration for drought

[6] 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)…"

conditions. Commenters also raised concerns over elements of the proposed action related to rangeland management, such as utilization levels and validity of monitoring data to support desired conditions statements. To address these concerns, the Forest Service responded in the following ways: 1) supplemented, improved, or modified the analyses; 2) considered literature/science; 3) made factual corrections; or 4) considered comments but determined no changes were needed.

In consideration of these comments, the proposed action was modified to include further explanation of grazing management techniques, drought response strategies, and adaptive management, along with additional analysis and project design features intended to further mitigate any potential unintended effects of project activities. One commenter suggested an alternative to the proposed action that would include a reduction of livestock numbers. The interdisciplinary team determined that an alternative that would reduce livestock numbers would not meet the purpose and need of the project because monitoring has demonstrated that the allotments can support current permitted livestock numbers while meeting desired conditions. However, there is a need for a longer permitted season of use and water developments to help with adaptive management implementation.

These concerns are addressed as appropriate in the "Alternatives, Including the Proposed Action" and "Environmental Consequences" sections of this environmental assessment. All substantive comments received during the designated comment period were considered by the Responsible Official.

CHAPTER 2 – ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the management of the Seventy Six, Two Troughs and Cedar Springs allotments. This section presents the alternatives in comparative form, in order to define the differences between each alternative and to provide 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.

Alternatives Considered in Detail

Alternative 1 – No Action

1. Authorization

No action, or no permitted livestock grazing, is included as an alternative in this analysis to provide an environmental baseline against which the effects of the other alternatives may be compared (FSH 2209.13, Ch. 90). 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.

2. Improvements

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(s).

Alternative 2 – Proposed Action

The Safford Ranger District (District) proposes to reauthorize livestock grazing on the Seventy Six, Two Troughs and Cedar Springs allotments. The proposed action involves installing new structural range improvements to include constructing and installing several new waterlines, storage tanks and drinkers from existing water sources. The District also proposes to extend the grazing season by one month to include the month of April to increase management flexibility. However, total AUMs would not exceed current permitted AUMs. Under the proposed action, livestock grazing would continue on the allotments with light to moderate grazing intensities and regular growing season rest or deferment that would provide for grazed plant recovery, increased plant vigor and retention of sufficient herbaceous vegetation to protect soils and to provide herbaceous cover for wildlife conservative forage utilization guidelines.

On all three allotments where grazing would be authorized, the proposed action consists of four components – **authorization, improvements, management practices/design features and monitoring –** implemented using an adaptive management strategy as defined in FSH 2209.13, Chapter 90.

1. Authorization

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

- Duration and timing of grazing – The duration of use on the allotments would be extended from 5 months (11/01 to 3/31) to 6 months (11/01 to 4/30). Although the permitted season of use would be extended one month, the permitted AUMs would remain the same. This means that either the same number of head would be authorized to graze for 5 months sometime during the 6-month season, or fewer head would be authorized to graze for the full 6 months.

  Annual authorized livestock numbers would be based on existing conditions, available water and forage, and predicted forage production for the year. Adjustments to the annual authorized livestock numbers and AUMs (increase or decrease) may occur during the grazing year, based on conditions and/or range inspections.

- Intensity of grazing – Forage use will be managed at a level corresponding to light to moderate intensity (30-45%)[7] to provide for grazed plant recovery, increased plant

[7] Grazing intensity is the percentage of forage produced in the current season, to the date of the measurement that has been consumed or trampled by animals. It is a comparison of the amount of herbage left compared with the amount of herbage that has been produced to the date of the measurement. Grazing intensity is measured at the end of a grazing period. Grazing intensity differs from utilization because it does not account for subsequent growth of either the ungrazed or grazed plants. May also be referred to as "seasonal utilization" or "relative

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.

- **Permit issuance.** A new 10-year term grazing permit would be issued for the allotments in accordance with Forest Service policy (FSM 2231.03) for the numbers and terms displayed below. The term grazing permits would identify the number, kind and class of livestock authorized and the season of use as required by Forest Service policy (FSM 2231.11). The permit would also identify the total animal unit months (AUMs) authorized for each permit as illustrated in Table 3 below. The number and class of livestock and the season of use would be allowed to vary in response to resource conditions and management objectives. Resource conditions that would affect management decisions may include but not be limited to precipitation, forage production, water availability and previous annual or seasonal utilization levels. Annual use will not exceed the total AUMs authorized or the season of use identified in the permit. Changes would be documented and authorized annually in the annual operating plans. The grazing permit would be issued within 90 days of final agency action following the NEPA decision to authorize grazing [FSH 2209.13(94) and R3 Supplement 2209.13-2016-1].

Table 3. Proposed permitted numbers and grazing management

Allotment	Management System	Animal Unit Months (AUMs)	Cattle Numbers-Season
Two Troughs	1-pasture winter seasonal	500	100 cow/calf - 11/01-4/30
Cedar Springs	1-pasture winter seasonal	750	150 cow/calf - 11/01-4/30
Seventy Six	1-pasture winter seasonal	1,425	285 cow/calf - 11/01-4/30

- **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[8] (CRMPs) will be encouraged where the coordinated use of intermingled private, state and federal lands is conducive to more effective management.

utilization". Descriptors for grazing intensity levels as determined at the end of the grazing period (FSH, R3-2209.13-2016-1). Light to non-use 0-30 percent, Conservative 31-40 percent, Moderate 41-50 percent, Heavy 51-60 percent, Severe 61+ percent.

[8] Coordinated resource management is the process by which various users and agencies cooperate to manage a variety of resources across multiple jurisdictional boundaries, which allows for landscape-level management and involvement of a variety of stakeholders.

- **Annual Operating Instructions.** On an annual basis, the District and permittee would continue to meet and jointly prepare Annual Operating Instructions (AOI) prior to each grazing year to set forth (FSH 2209.13):
  - 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 on the allotment, or the management prescriptions and monitoring that would 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 standards 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 and AMP.

2. Improvements

The lack of reliable water has been the limiting factor on all of the allotments and several improvements are proposed to rectify the situation and help to achieve desired conditions. In order to improve livestock distribution and pasture reliability, several structural improvements are proposed as described in this section. Maintenance of existing improvements would continue as needed. 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). On an annual basis, responsibilities for repair and maintenance of existing improvements would be identified in the AOI. These improvements are proposed in the context of adaptive management, meaning they have been identified as possible practices to assist in the achievement of desired conditions.

Two Troughs

1. A new polypipe water pipeline would be installed from the existing Two Trough Well #410014 heading north along the Hold-Out Canyon for approximately 3 miles. The legal location of the proposed improvement is T7S R22E Sections 22 and 27. Four to six drinkers would be placed along the pipeline at appropriate locations, along with a sufficient number of storage tanks. All proposed locations of improvements are estimated in Figure 2.

2. A new additional polypipe pipeline would run from the existing Two Troughs Well and installed along the Forest Road #6609 up to a 1/2 mile to a drinker and storage tank. All proposed locations of improvements are estimated in Figure 2.

Cedar Springs

1. A new polypipe water pipeline would be extended from the existing Iron Tank Well #409003 and installed along existing Forest road #676 to the north for approximately 1.5 miles to a new water facility with at least one drinker and storage tank located to the west of the road. The legal location of the proposed improvement is in T8S R22E Section 5. All proposed locations of improvements are estimated in Figure 3.

Seventy Six

1. A new polypipe pipeline would be installed from Lindsay Well #409009 for approximately 2.5 miles to the southeast on to the Seventy Six Allotment where a new water facility would be located, including a drinker and storage tank. The legal locations of the proposed improvement are in T8S R22E Section 16 and 22. All proposed locations of improvements are estimated in Figure 4.

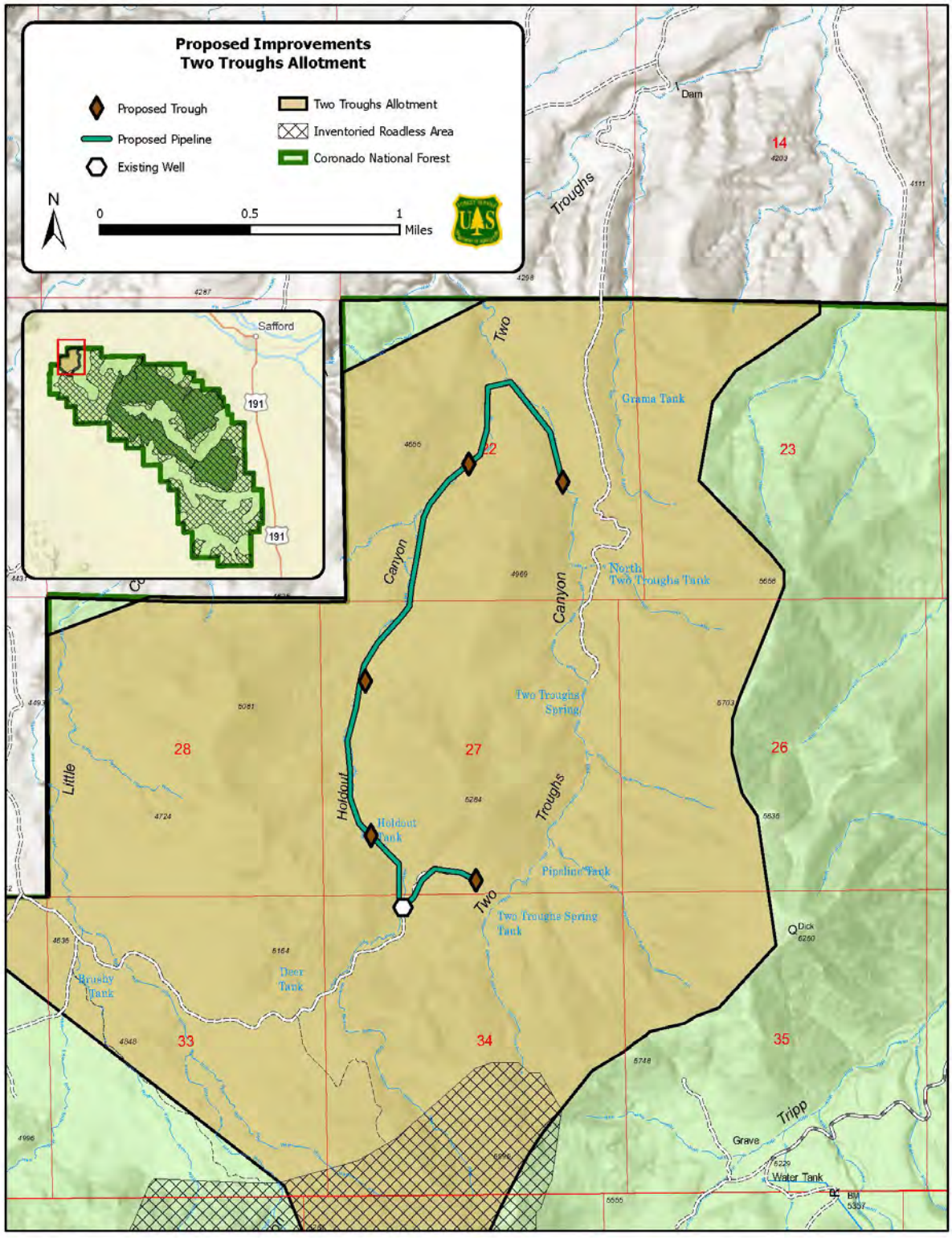

Figure 2. Two Troughs Allotment proposed improvements

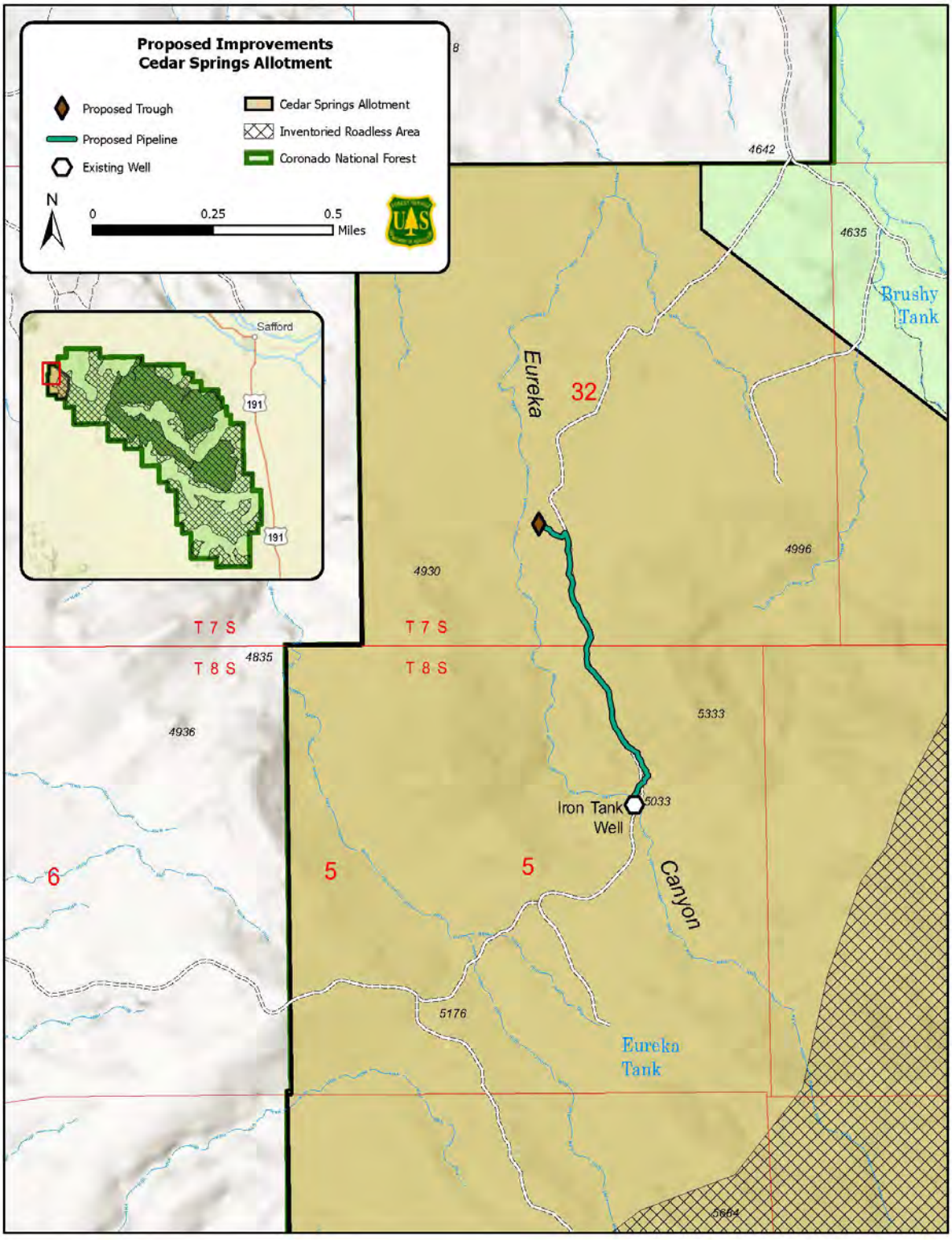

Figure 3. Cedar Springs Allotment proposed improvements

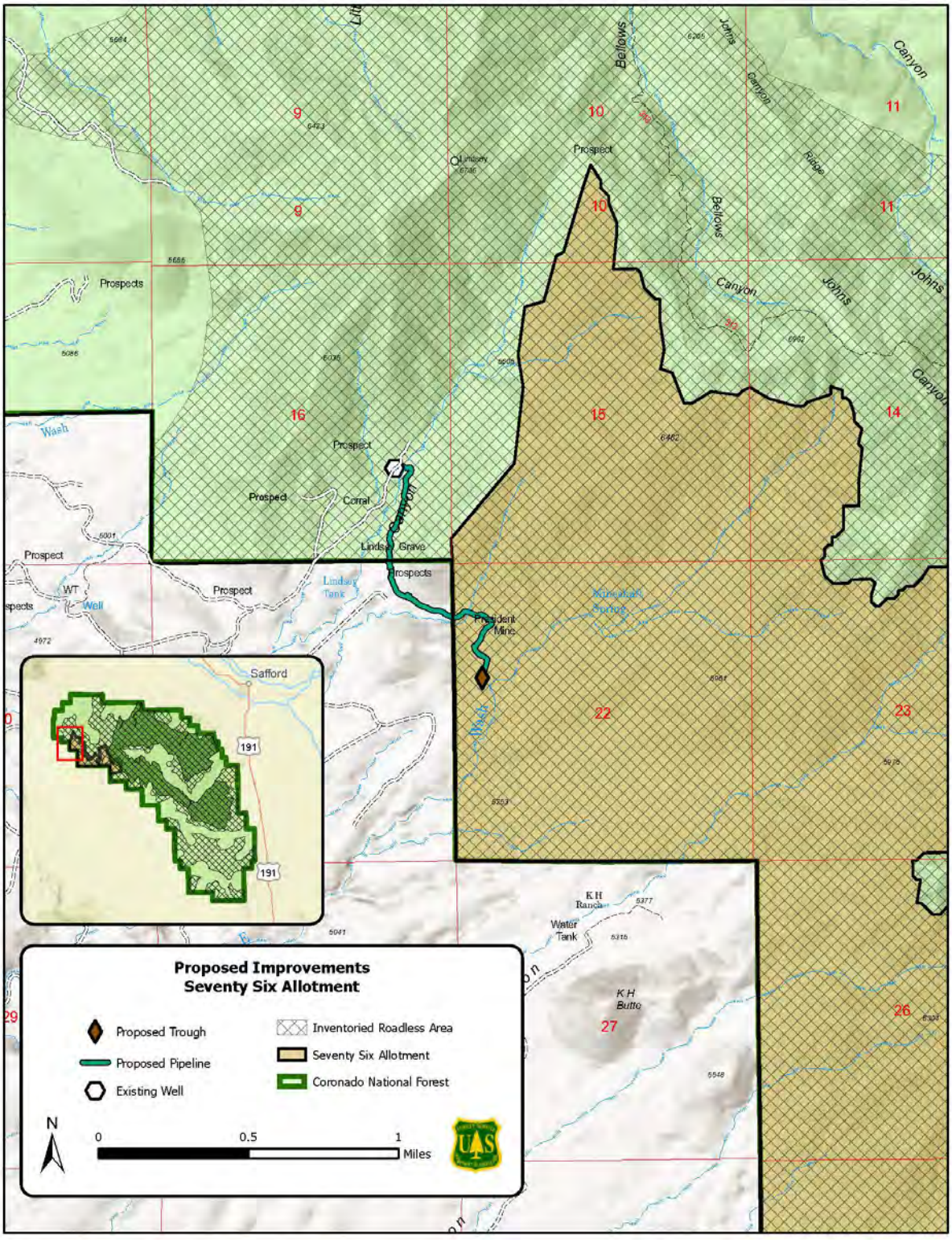

Figure 4. Seventy Six Allotment proposed improvements

3. Management Practices/Design Features

To mitigate resource impacts, the following measures would be implemented. These practices 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 Forest Service Best Management Practices. Implementation of the mitigation measures and design criteria is intended to reduce and/or minimize environmental impacts.

Soil, Hydrology, Vegetation and Watershed – 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, increase herbaceous residue needed for soil protection and to increase herbage producing ability of forage plants. A utilization guideline of up to 45% use of key species in key areas would be used to achieve this objective.
- Management practices would be used to achieve proper distribution or lessen the impact on sensitive areas. Practices include herding, salting and controlling access to waters. Salt would be placed away from roads and one quarter mile from waters. Placement of liquid or bulk supplements would require prior approval of the District Ranger.
- Improvement construction and maintenance in the proposed action would be carried out utilizing USFS Best Management Practices. This would mitigate any effects to soil and reduce the measurable effects. These practices include the construction of water bars or erosion control structures, and installation of appropriate signage where necessary to prevent off-road travel along pipeline routes.
- Road use and construction activities for the installation of pipeline, drinkers, and storage tanks for the project will be conducted such that wind erosion potential will be minimized, as needed. Possible mitigation may include wetting down or applying dust suppressants to the road surface and covering or wetting down piles of excavated soil. Excavation will be limited to the minimum required for the project.

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

- All water developments would include wildlife access and escape ramps and would be designed for improved access for all wildlife species. Waters would be kept available to wildlife year-round. Wildlife escape ramps should extend to the bottom and near the edge of aboveground constructed waters, and at an angle to avoid entrapment of wildlife in constructed water facilities.
- Avoid the removal of Yucca or Agave to conserve nectar sources for bats.
- This project will comply with Coronado Stock Pond Management Plan.
- Fences constructed around natural waters should allow bats and other desirable wildlife to pass through unharmed.

- Water quality, quantity, soil function and structure and wildlife habitat should be protected and enhanced at natural springs and seeps.
- This project will meet the applicable Wildlife Conservation Measures agreed to in the Biological Assessment and Biological Opinion on Ongoing Grazing on the Coronado National Forest (USFS 2019, USFWS 2021). Species-specific measures include:
    - *Mexican spotted owl (MSO)*: Within protected and recovery habitat as described in the MSO 2012 Recovery Plan, forage utilization is maintained at conservative levels, i.e., light to moderate grazing intensity.
    - *Yellow-billed cuckoo (YBCU)*: If the construction or repair of range improvements might disturb breeding YBCU, then that activity will be avoided within the YBCU breeding season (June 1-September 30).

Cultural Resources – The objective is to protect cultural resources (historic and archaeological sites and traditional cultural properties) 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. In general, these measures include the following:

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

Invasive Weeds – The objective is to minimize the introduction and establishment of invasive weeds being established on National Forest System lands.

- Equipment would be cleaned prior to moving between units known to be infested with invasive plants and other units that are free of such plants.

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. Monitoring is necessary under the adaptive management strategy proposed to implement timely and effective management changes. The Safford Range Program would be primarily responsible for monitoring. Active cooperation and participation by the permittee would be encouraged.

Effectiveness monitoring includes measurements to track condition and trend of upland and riparian vegetation, soil, and watersheds. Monitoring would be done following procedures described in the Interagency Technical Reference[9] and the Region 3 Rangeland Analysis and Training Guide[10]. 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 typically occurs every 5 years but would occur at least once over the 10-year term of the grazing authorization.

Implementation monitoring would occur yearly and may include inspection reports, forage utilization measurements in key areas, livestock counts and facilities inspections. Utilization measurements are made following procedures found in the Interagency Technical Reference[11] and with consideration of the Principles of Obtaining and Interpreting Utilization Data on Southwest Rangelands (Smith et al 2007).

Utilization would be monitored on key forage species, which are perennial grasses that are palatable to livestock. At a minimum, monitoring would include use in key areas but may include monitoring outside of key areas. Utilization may be monitored both during the grazing season (seasonal use) and at the end of the growing season (annual utilization).

Utilization guidelines are not intended as inflexible limits. Utilization measurements can indicate the need for management changes prior to this need being identified through long-term monitoring. Utilization data would not be used alone, but would be used along with reporting the number of AUMs grazed (actual use), climate and condition/trend data, to determine stocking levels and pasture rotations for future years.

The Safford District Range Staff Officer and the permittees would be responsible for monitoring livestock grazing utilization. Permittees would be encouraged to participate in monitoring activities. Records of livestock numbers and movement dates would be kept by the permittees and would be provided to the District Range Staff.

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 in Chapter 1 of the EA (FSH 2209.13, Chapter 90). 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, specific dates for grazing, class of animal and modifications in allotment use may be administratively modified as

[9] Sampling Vegetation Attributes, Interagency Technical Reference. 1996. Cooperative Extension Service, USDA Forest Service and Natural Resources Conservation Service, and USDI Bureau of Land Management.

[10] Rangeland Analysis and Management Training Guide. 1997. USDA Forest Service, Southwestern Region.

[11] Utilization Studies and Residual Measurements. Interagency Technical Reference. 1996. Cooperative Extension Service, USDA Forest Service and Natural Resources Conservation Service, and USDI Bureau of Land Management. Revised 1999.

determined to be necessary and appropriate, based on implementation and effectiveness monitoring. However, such changes would not exceed the limits for timing, intensity, duration and frequency authorized in the NEPA-based analysis and decision. Administrative changes would be documented and implemented in the AOI which is made part of 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 would 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 Responsible Official would determine whether correction, supplementation 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.

Management in Drought

Drought is an ongoing management hurdle for livestock grazing in the southwestern United States. Managing around drought requires a heavy reliance on adaptive management, planning, and conservative stocking. Guidelines for addressing drought are located in a Regional Supplement to the Forest Service Handbook (FSH) 2209.13-2015. The Standardized Precipitation Index (SPI) is a unit of measure that compares recent precipitation values for a period of interest with long term historical values to assess moisture conditions in a given area. In the Southwestern Region, any time the SPI reaches a value of minus 1.00 or less for the preceding 12-month period, grazing allotments should be evaluated for existing drought conditions. This evaluation is site-specific and accomplished through an interdisciplinary approach that includes the livestock producer. Stocking during and after drought will be taken into account to provide for the overall recovery of the resource. Livestock management and drought planning is an ongoing process with or without the SPI values of a minus 1.00. These conversations take place during AOI development and throughout the year. Drought is one of the primary issues that is considered when making any management decisions related to livestock grazing. Implementing an adaptive management strategy allows for management action in response to changes in climate, such as adjusting stocking levels as needed in periods of below or above average precipitation.

Alternatives Eliminated from Detailed Study

Alternative 3 – Continue Current Management

Under this alternative, there would be no change in allotment management. As permits expire, new permits would be issued for the classes and numbers of livestock currently permitted. Annual authorized use would continue to be controlled through annual operating instructions. None of the proposed improvements would be implemented, but existing improvements would be maintained. For the purposes of comparison, this alternative assumes management intensity, utilization and distribution patterns similar to the past five years. This alternative was not analyzed in detail because it does not meet the purpose and need to manage resources in a manner that achieves Forest Plan objectives and desired

conditions, nor does it formally incorporate adaptive management to allow for sufficient management flexibility.

Alternative 4 – Reduce Livestock Numbers

One commenter suggested an alternative to the proposed action that would include a reduction of livestock numbers. The interdisciplinary team determined that an alternative that would reduce livestock numbers would not meet the purpose and need of the project. Monitoring has demonstrated that the allotments can support current permitted livestock numbers while meeting desired conditions. However, there is a need for a longer permitted season of use and water developments to help with adaptive management implementation.

Alternative 5 – Restrict Livestock Grazing at High Elevations

One commenter suggested an alternative to the proposed action that would physically restrict livestock access to high elevation areas to prevent damage to upland habitat and soils, as well as further encroachment of invasive plants into higher forest elevations. In accordance with procedures in the 1982 Planning Rule, the suitability and capability of National Forest System lands for producing forage for grazing animals is determined in forest planning. All allotments discussed in this Environmental Assessment occur within those areas identified as suitable for grazing in the 2018 Coronado National Forest Land and Resource Management. As such, this alternative was not analyzed in detail.

CHAPTER 3 – ENVIRONMENTAL CONSEQUENCES

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

Cumulative effects are the past, present and reasonably foreseeable future actions that add to the direct and indirect effects considered in this EA (see Table 4). If a resource indicated there are no direct or indirect effects, then no cumulative effects were analyzed. 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. For those resources for which a cumulative effect contribution reasonably exists, the geographical extent considered and timeframe in which they were considered is listed in Table 5.

Table 4. Past, present and reasonably foreseeable actions considered in the cumulative effects analysis

Project	Year	Affected Area	Affected Resources/Issues
Forest-regulated harvests: fuelwood and forest products (e.g., acorns, berries) (40% slope or less)	1940-Future	Up to 80,000 acres	Soils, vegetation, wildlife habitat/decreased sustainability, loss of biodiversity, loss of soil fertility, deforestation, increased risk of introduction or spread of invasive species.
Grazing – ongoing and Veach Allotment EA	1912-Future	372,464 acres	Soils, water, vegetation, habitat/increased erosion and sedimentation, loss of soil fertility, decreased sustainability, loss of biodiversity.
Vegetation management (thinning, prescribed fire) – including Pinaleño FireScape EA	1970-Future	Approximately 150,000 to 200,000 acres	Vegetation, air quality, habitat/improved Forest health and vigor, improved wildlife habitat, short-term degraded air quality.
Pinaleño Ecosystem Restoration Project	2011-2021	5,754 acres	Air quality, scenic resources, vegetation, cultural resources, water, soils, habitat/exhaust and fugitive dust emissions, noise, damage or loss of vegetation, damaged heritage resources, increased erosion and sedimentation, soil compaction and erosion, loss of habitat and scenic quality, increased risk of introduction or spread of invasive species.
OHV and other motorized use, including restricted use and unauthorized roads	1920-Future	About 275 miles of ML-2 thru ML-5 roads; 20 miles of ML-1 roads	Air quality, scenic resources, vegetation, cultural resources, water, soils, habitat/exhaust and fugitive dust emissions, noise, damage or loss of vegetation, damaged heritage resources, increased erosion and sedimentation, soil compaction and erosion, loss of habitat and scenic quality, increased risk of introduction or spread of invasive species.
<u>Historical fires</u> Pass Ridge Pine Oak Grove Rock House Bald Ridge Frye Bar-X	 1971 1977 1984 1995 1995 2009 2017 2017	 1,194 acres 2,117 acres 735 acres 721 acres 504 acres 606 acres 48,443 acres 2,786 acres	Air quality, vegetation, soils, water, cultural resources, habitat/loss of terrestrial habitat, aquatic habitat degradation, increased erosion and sedimentation, short-term degraded air quality, loss of wildlife, increased risk of introduction or spread of invasive species.

Project	Year	Affected Area	Affected Resources/Issues
Maintenance, NFS roads	1920-Future	275 miles	Air quality, ambiance/short-term dust and exhaust emissions, noise, and disruption of ambiance and use, increased risk of introduction or spread of invasive species.
Maintenance, developed recreation sites and ongoing special use permits	1960-Future	Approximately 35 acres	Air quality, ambiance/short-term dust and exhaust emissions, noise, and disruption of ambiance and use, increased risk of introduction or spread of invasive species.
Maintenance, hiking trails	Ongoing	30-100 miles/year (320+ miles total)	Air quality, recreation/short-term disruption of recreational use, short- term dust emissions.
Mining (production and exploration) – including Galiuro Exploratory Drilling	1880-Future	District-wide	Air quality, scenic resources, vegetation, water, soils, cultural resources, habitat/fugitive dust, airborne contaminants, noise, loss of vegetation and habitat, increased erosion, wildlife displacement, contaminated runoff to streams and groundwater, increased risk of introduction or spread of invasive species.
Rural and urban development	1880-Future	Off-Forest	Soils, air quality, water, scenic quality, vegetation, habitat/decreased sustainability, loss of habitat, short- term air quality degradation, increase erosion and sedimentation, wildlife displacement, increased risk of introduction or spread of invasive species.
Decommission of unauthorized roads	2014	About 7 miles	Air quality, se/short-term exhaust and dust from heavy machinery use, increased risk of introduction or spread of invasive species.
Natural processes including climate change, wildfires, insect and disease, and drought	Ongoing	Pinaleño Ecosystem Management Area	Air quality, vegetation, soils, water, cultural resources, habitat/loss of terrestrial habitat, aquatic habitat degradation, increased erosion and sedimentation, short-term degraded air.

Table 5. Cumulative effects spatial and temporal boundaries

Resource	Spatial Bound	Temporal Bound
Wildlife	Project Area (the grazing allotments)	The timeframe selected for this analysis is 10 years into the future and 10 years into the past. This timeframe was selected because 10 years is the term of the term grazing permit.
Soil Condition	6th code watersheds in which the three allotments are located	

Resource	Spatial Bound	Temporal Bound
Vegetation Condition	Project Area (the grazing allotments)	
Water Quality and Quantity	6th code watersheds in which the three allotments are located	
Special Management Areas	Project Area (the grazing allotments)	
Cultural Resources	Safford Ranger District	

Wildlife

Affected Environment

Management of wildlife species and habitat, and maintenance of a diversity of animal and plant communities is an important part of the mission of the Forest Service. Management activities on NFS lands must be planned and implemented so that they: do not jeopardize threatened or endangered species; do not lead to a trend toward federal listing under the Endangered Species Act (ESA); and do not lead to a trend of loss of viability of Regional Forester's Sensitive Species (RFSS), bald and golden eagles, and migratory birds.

Effects of the ongoing grazing activities on the allotments have been evaluated in a Biological Assessment (BA) and Biological Opinion (BO) on Ongoing Grazing on the Coronado National Forest (USFS 2019, USFWS 2021). A Biological Assessment/Evaluation Wildlife Specialist Report (BABEWS), which tiers to the programmatic BA and BO, and also includes RFSS and migratory birds, has been completed and is summarized below. The action area for the BABEWS analysis is the same as the proposed project area: the Seventy Six, Two Troughs and Cedar Springs allotments. This tiers to the scope of activities described in the programmatic BA and BO (USFS 2019, USFWS 2021).

Table 6 includes Federally listed threatened and endangered species and their critical habitat within the project area.

Table 7 below includes Forest Service sensitive species known or have the potential to occur within the project area. Species listed were selected from the Forest Service Region 3 sensitive species list, revised in 2013. Many species are listed as Forest Service Region 3 sensitive species because their distribution and habitat requirements are poorly known, or the species are believed to be rare. For the purpose of analysis, their presence or absence within the project area is assumed in this EA. Some Region 3 sensitive species were not considered in this analysis because either (1) they or their habitat do not occur in or near the proposed project area; (2) potential impacts from the proposed project are so remote as to be non-existent; or (3) no information as to occurrence or habitat needs is available.

Federally-listed Species

Table 6. Threatened and Endangered Species found in the project area or suitable habitat in the project area

		Habitat[1]		
Species	**Status**	**Occ.**	**Pot.**	**Comments/Effects Determination**
Mexican Spotted Owl (*Strix occidentalis lucida*) and designated critical habitat	T	Y	Y	There is potential recovery habitat in these allotments. Protected Activity Centers (PACs) are located outside the allotments within 0.3 miles. It is discountable that MSO will be harassed by cattle operations. No improvements are proposed within the PACs. Cattle and ranch operators are unlikely to access the steep upper areas of the allotment where the PACs occur. Grazing that might occur will be at low to moderate intensity and will allow for vigorous plant growth providing food sources and cover for the small mammal prey base. The likelihood of this grazing measurably affecting key MSO habitat components and primary constituent elements of critical habitat is discountable. This project meets the guidance criteria in the Ongoing Grazing on the Coronado National Forest consultation guidance, Biological Assessment, and Biological Opinion. ***May affect, not likely to adversely affect***
Yellow Billed Cuckoo (*Coccyzus americanus)*	T	N	Y	Currently, no YBCU are known to occur on CNF land in the Pinaleño EMA. Survey is ongoing in the Pinaleño Mountains. There is one area of potential marginal habitat in the Seventy Six Allotment and it is possible that YBCU could be detected within the duration of this permit. Grazing might affect vegetation that provides foraging and cover in a small scale and intermittently. This project follows the determination criteria in the Ongoing Grazing on the Coronado National Forest consultation guidance, Biological Assessment, and Biological Opinion. ***May affect, and is likely to adversely affect***

[1] Occ. (Occupied Habitat) = species recorded in project area or has a high potential to occur in suitable habitat within the project area. Pot. (Potential Habitat) = potential habitat for the species occurs in the project area but species has not been recorded there.

Forest Service Sensitive Species

Table 7. Forest Service Sensitive Species for the project area

SPECIES NAME	HABITAT*		Comments/Effects Determination
	OCC.	POT.	
BIRDS			
American peregrine falcon *Falco peregrinus anatum*	N	Y	No Effect
Northern Goshawk *Accipiter gentilis*	N	Y	No Effect
Gray Vireo *Vireo vicinior*	N	Y	May impact individuals but not likely to trend towards federal listing
Gould's Wild Turkey *Meleagris gallopavo mexicana*	Y	Y	May impact individuals but not likely to trend towards federal listing
Lucifer Hummingbird *Calothorax lucifer*	N	Y	May impact individuals but not likely to trend towards federal listing
Arizona woodpecker *Picoides arizonae*	Y	Y	May impact individuals but not likely to trend towards federal listing
Yellow-eyed Junco *Junco phaetonus*	Y	Y	May impact individuals but not likely to trend towards federal listing
White-eared Hummingbird *Hylocharis leucotis*	N	Y	May impact individuals but not likely to trend towards federal listing
Whiskered Screech Owl *Megascops trichopsis*	N	Y	May impact individuals but not likely to trend towards federal listing

SPECIES NAME	HABITAT*		Comments/Effects Determination
	OCC.	POT.	
Broad-billed hummingbird *Cynanthus latirostris*	N	Y	May impact individuals but not likely to trend towards federal listing
Rose-throated Becard *Pachyramphus oglaiae*	N	Y	May impact individuals but not likely to trend towards federal listing
Buff-Breasted Flycatcher *Empidonax fulviforms*	N	Y	May impact individuals but not likely to trend towards federal listing
Northern beardless tyrannulet *Camptostoma imberbe*	N	Y	May impact individuals but not likely to trend towards federal listing
Abert's towhee *Pipilo aberti*	N	Y	May impact individuals but not likely to trend towards federal listing
Varied Bunting *Passerina versicolor*	N	Y	May impact individuals but not likely to trend towards federal listing
AMPHIBIANS			
Lowland Leopard Frog Lithobates yavapaiensis	N	Y	May impact individuals but not likely to trend towards federal listing
MAMMALS			
Mexican long-tongued bat *Choeronycteris mexicanus*	N	Y	No Effect
Lesser long-nosed bat *Leptonycteris yerbabuenae*	N	Y	No Effect
Western red bat *Lasiurus blossevillii*	N	Y	No Effect
Western yellow bat *Lasiurus xanthinus*	N	Y	No Effect
Allen's lappet-browed bat *Idionycteris phyllotis*	N	Y	No Effect
Pale Townsend's big-eared bat *Corynorhinus townsendii pallescens*	N	Y	No Effect
Northern Pygmy Mouse *Baiomys taylori ater*	N	Y	May impact individuals but not likely to trend towards federal listing
Hooded Skunk *Mephitis macroura milleri*	N	Y	No Effect
REPTILES			
Giant Spotted Whiptail *Aspidoscelis sticogramma*	N	Y	May impact individuals but not likely to trend towards federal listing
Twin-spotted Rattlesnake *Crotalus pricie*	Y	Y	No Effect
PLANTS			
Arizona alum root *Heuchera glomerulata*	N	Y	May impact individuals but not likely to trend towards federal listing
Broadleaf Ground Cherry Physalis latiphysa	N	Y	May impact individuals but not likely to trend towards federal listing
Chihuahuan Sedge *Carex chihuahuaensis*	N	Y	May impact individuals but not likely to trend towards federal listing
Chihuahuan Scurfpea *Pediomelum pentaphyllum*	N	Y	May impact individuals but not likely to trend towards federal listing

Environmental Consequences

Alternative 1 - No Action

Under the No Action alternative, there would be no adverse effects to Forest Service Sensitive Species or Federally listed Threatened, Endangered, or Proposed wildlife species,

or their habitat.

Alternative 2 - Proposed Action

The proposed action could result in an adverse effect to the yellow-billed cuckoo, if it is found to occur in Seventy Six Allotment in the future. The proposed action may affect, is not likely to adversely affect Mexican spotted owl and its designated critical habitat. Concurrence for the Mexican spotted owl determination and formal consultation for the yellow-billed cuckoo determination was completed with USFWS on September 30, 2021 as part of the Biological Opinion on Ongoing Grazing on the Coronado National Forest and this project tiers to that consultation (USFWS 2021).

For Forest Service Sensitive Species, some disruption of individuals might occur from grazing or the proposed improvements. This disruption is anticipated to be minimal scope, duration and intensity because grazing activities would be monitored regularly, are planned to be maintained at light to moderate intensity and are planned to allow for 6 months of rest each year for the areas to regenerate during the main growing season and because of the conservation measures in the EA and in the programmatic BA/BO on Ongoing Grazing on the Coronado National Forest are followed. Effects from grazing should not reach significant levels to cause negative impacts nor downward trends toward Federal listing for any of the above species.

For Migratory Bird species, no impacts to birds of conservation concern are expected. The proposed action will not impact bald and golden eagles and is not likely to cause a trend to Federal listing or loss of viability. Because grazing activities are monitored regularly, are planned to be maintained at light to moderate intensity, are heavily influenced by precipitation, and are planned to allow 6 months of each year for the areas to regenerate during the main growing season, impacts from grazing should not reach significant levels to cause negative impacts or downward population trends leading toward Federal listing for any species of conservation concern.

The analysis area includes the Seventy Six, Two Troughs and Cedar Springs allotments. The duration of effects is considered the ten-year term of the grazing permit, therefore ten years in the past and ten years in the future.

For the purpose of NEPA analysis, past, present and reasonably foreseeable activities are listed in Table 3. These activities are not expected to create a cumulative effect with the proposed action that would further affect the species analyzed.

For the purpose of consultation under the Endangered Species Act (ESA), cumulative effects include future State, tribal, local or private actions that are reasonably certain to occur in the project area. Future federal actions that are unrelated to the proposed action are not considered because they require separate consultation under Section 7 of the ESA (US Fish and Wildlife Service 1998).

Livestock grazing on private and state land adjacent to the eastern boundary of the project area is expected to continue. Rangelands adjacent to the forest have been grazed for over 100 years. Well-managed grazing occurs on the private and state lands, but this activity is not expected to contribute to cumulative effects downstream when added to the effects of the proposed action.

Recreational activities such as hiking, birding, hunting, and off-highway vehicle driving are expected to continue within the project area over the life of the project. Hunting is regulated by the Arizona Game and Fish Department and is restricted to relatively few hunters, generally during the fall and winter deer and quail seasons. Hiking, birding, and off-highway vehicle driving occur year-round, but levels of activity are low and confined to a few roads and trails. Off-highway vehicle use is expected to remain low. It is not anticipated that these activities will add to the effects of the proposed action. Therefore, no cumulative effects to wildlife are anticipated.

Soil Condition

Affected Environment

A General Ecosystem Survey (GES) was completed by the Forest Service in 1991 and covers the entire Safford District (USDA, 1991). In the GES report, all of the soils found within the three allotments are within the High Sun Mild (HSM) GES climatic gradient. This gradient receives more than half of the mean annual precipitation during the periods of April 1 to September 30 and has mild winters.

The allotment has variable soil types. The soil condition assessments were based on the soil condition ratings in the GES of the Coronado National Forest and on-site field observations. Across the allotment, soil conditions were evaluated based on interpretations of the three primary soil functions: soil hydrologic function, soil stability, and nutrient cycling.

Soil condition on all three allotments were evaluated. Field monitoring sites were chosen to represent areas with ongoing grazing. Soil condition on all the monitoring sites was satisfactory, the highest category according to the Soil Condition Rating Guide. Although no areas were found to have impaired or unsatisfactory soils, this does not indicate that 100% of the allotments' soils are satisfactory, as it is not possible to visit everywhere within the allotments.

The most current available data collected in 2015 assesses several previously classified unsatisfactory soil conditions, some of which were not formally validated on-site when they were first classified. Because these units were not initially verified in the field, the results of previous analyses showed soil erosion modeled GES soil conditions. The changes in soil condition classes are therefore not all improvements; some are a representation of better available site-specific data that was not previously available. Soil condition on all the sites assessed was satisfactory; the highest category according to the Soil Condition Rating Guide. This indicates that hydrologic function, soil and site stability, and nutrient cycling are intact on these sites.

Environmental Consequences

Alternative 1 - No Action

Under this alternative, livestock grazing would not occur. Soil condition on areas that are currently more heavily grazed may improve over time, resulting in decreased runoff and improved water infiltration into the soil in these areas. Decreased runoff would reduce the amount of water flowing into drainages during storm events and would also reduce the potential for soil erosion. Also, improved plant productivity and improved soil health may

reduce wind erosion in these areas over time. Under the no action alternative there would be no more cattle on the allotments, therefore new water developments would not be needed, and there would be no resulting effects.

Alternative 2 – Proposed Action

Under this alternative, the pipeline and watering facilities would be installed for improved grazing distribution. The Animal Unit Months (AUMs) would not change, but the potential grazing season would be extended to include the month of April. As a result of improved grazing distribution, areas of the allotments that are currently more heavily grazed as a result of limited water availability will have improved soil condition over time. Improved soil condition will result in improved rainwater infiltration and reduced runoff. Reduced runoff will mean less water in drainages during flood events and will reduce the potential for soil erosion. Improved soil condition and vegetative cover in areas that are currently more heavily grazed may also reduce wind erosion in these areas.

Cumulative Effects

Past, present and foreseeable future projects or actions that have affected or will affect the project area include historic heavy grazing, wildfire suppression, wildfire and prescribed burns, recreation, invasive plants, and water developments.

Historic heavy livestock grazing throughout the watersheds around the turn of the century resulted in a reduction in native grasses and an increase in shrubs. In some areas, removal of vegetation by grazing resulted in substantial soil loss. Best Management Practices (BMPs) to mitigate grazing effects have since been implemented on most Federal lands, with a general improvement in conditions. Soil loss, however, is most likely irretrievable in human timeframes (100 years). It is not expected that the proposed action or alternatives will have further adverse impacts to the effects of historic heavy livestock grazing.

Wildfire suppression activities, since the establishment of the National Forest (circa 1908), is contributing to the trend of increased shrubs, with associated decreases in grasses on National Forest land. It is not expected that the proposed action or alternatives will have additional adverse impacts on the results of past wildfire suppression activities.

Pinaleño Ecosystem Restoration Project (PERP) will reduce fuel loads, improve habitat, and reduce susceptibility to insect and disease outbreaks through targeted fuels treatments using a variety of methods including prescribed burning and mechanical vegetation treatments. The mechanical vegetation treatments planned through PERP are planned with procedures and best management practices in place to reduce potential for soil compaction and soil erosion. However, some soil erosion and compaction can be expected due to soil disturbance and compaction associated with access and practice implementation. These activities would be in the higher elevations of the watersheds, with the practices and grazing for the Cedar Springs, Seventy Six, and Two Troughs allotments occurring lower in elevation within the watersheds. As previously discussed, erosion from the Seventy Six, Two Troughs and Cedar Springs allotments is expected to be very minor and localized, so it is not expected to significantly contribute to that which occurs from PERP.

Prescribed burns and wildfires cause a substantial air quality impact in the short term from smoke. The Arizona Department of Environmental Quality (ADEQ) regulates prescribed burning in the state in accordance with the State Implementation Plan and any prescribed

burning in the project area would be coordinated through the ADEQ and would follow the State Implementation Plan. Prescribed burns and wildfire can increase erosion in the short term if it results in substantial decreases in ground cover or if the heat of the fire becomes such that hydrophobic soil conditions result. Ultimately, however, prescribed burns seek to minimize or eliminate both of these effects. In the long term, the vegetation re-establishment after a fire should reduce impacts to soil erosion. Soil erosion from hydrophobic soil conditions or decreases in ground cover can substantially increase sediment load in streams in the short term, until vegetation becomes established. It is not expected that the proposed action or alternatives will have additional adverse impacts on air quality or soil erosion issues resulting from prescribed burns or wildfires.

Since the conception of this project, the Frye Fire burned a large portion of the Pinaleño Mountains in 2017. It burned close to, but not within the project area. It burned 3,357 acres of the 19,296-acre Goudy Canyon Wash 6th code watershed. The approximately 7,121-acre Seventy Six Allotment includes 1,434 acres of the Goudy Canyon Wash watershed, but does not include any of this burned area. Of the 3,357 acres of Goudy Canyon Wash watershed that did burn, only 740.6 acres were categorized as moderate burn severity and 368.7 acres were categorized as high burn severity. The remaining 2,248 acres were categorized as either low, very low/unchanged or the areas have no data.

The areas that burned at high severity would be expected to have the greatest impacts to soil condition due to vegetation removal, creation of water repellant layer in the soil due to the severity of fire, incineration of organic material, increased erosion and runoff, and the longer amount of time that would be needed for the soil and landscape to recover from these effects. Areas that burned at moderate severity may still have many of these effects, but not commonly to the degree or duration that would be expected in high burn severity areas. Areas that burned at low intensity would normally be expected to recover relatively rapidly since vegetation is more lightly impacted and can quickly regrow, there is not commonly a water repellant soil layer associated with low severity fire, and erosion and runoff problems are largely minimized due to remaining vegetation, organic material, and rapid regrowth.

Burned areas can be expected to result in increased sediment-laden runoff during storm events resulting in damaging flood events, which often occurs for several years post-fire, although areas that burned at low intensity are relatively minor contributors to this effect. The proposed action and no action alternatives are not expected to result in substantial changes to localized erosion within the project area, and it is therefore not expected that they would substantially worsen these post-fire flood events.

Increased storm flows coming through project area drainages from burned areas upstream may cause increased erosion of streambanks, sediment deposition, or incised drainage channels within the project area, depending on localized site conditions. The no action and proposed action alternatives are both expected to result in good production of available vegetation along drainage channels. In consideration of the force of the flows coming through these drainages, it would not be expected that any differences between the two alternatives in the short number of years before these flood events start to diminish would be such that the magnitude of the damage would be substantially different between the two alternatives.

Recreation impacts in the project area are primarily from vehicle use on un-surfaced roads. Presently, Off Highway Vehicle (OHV) use is not substantial in this area. However, since this outdoor recreation activity is growing in popularity, it may lead to the creation of new unauthorized roads within the project area. Vehicle and OHV use on un-surfaced roads generates dust, which negatively impacts air quality. Also, these roads can have substantial soil erosion issues, particularly on steeper sections of the road. Increased numbers of un-surfaced roads would result in increases in air quality and soil erosion issues. It is not expected that the proposed action or alternatives will have a substantial impact on recreation or its impacts.

Invasive species management is ongoing in the entire Pinaleño EMA, however no specific project is specified for the project area. Lehmann lovegrass is a non-native in the project area, but its widespread nature throughout Southeast Arizona makes it an unlikely candidate for treatment. It should also be noted that Lehmann lovegrass can contribute positively to actual watershed condition through accumulations of litter on the soil.

Water developments may be added to supplement existing livestock water sources. These water developments may include wells or the improvement of a spring. The conservative volume of water to be drawn to satisfy the needs of the proposed stocking rates of livestock is less than two percent of the total volume of water which is annually recharged from precipitation. So, any additional water developments to satisfy the water needs of livestock would not cause substantial impacts to the subsurface water table. If new livestock water sources become available, it would supplement that which already exists, possibly further improving livestock distribution and benefiting watershed conditions with increased ground cover through litter and plant establishment. Water table effects, as previously described, would be expected to be minimal or non-existent. Improved livestock distribution may improve soil condition over time in areas that are currently heavily grazed. Improved soil condition would result in improved rainwater infiltration and reduced runoff. Reduced runoff would mean less water in drainages during flood events and would reduce the potential for soil erosion. Improved soil condition and vegetative cover in areas that are currently more heavily grazed may also reduce wind erosion in these areas.

Vegetation Condition

Grazing by domestic livestock may impact vegetation by changing the mix of species in the plant community being grazed (vegetation composition); by changing the density and frequency of perennial forage plants (forage frequency); and by changing the vigor of the grazed plants. These three vegetation effects are combined into vegetation condition classes that reflect the relative effects of grazing on vegetation. The condition ratings are based on comparisons to an undisturbed plant community. Thus, ecological condition is an expression of the health of the vegetation and soil relative to their combined potential to produce a sound and stable biotic community[12]. Trend is an expression of the plant community's movement

[12] The Coronado National Forest has not completed a Terrestrial Ecosystem Survey to identify the potential natural community. Therefore, Natural Resource Conservation Service (NRCS) Land Resource Unit Descriptions are used to determine condition. Major units in the project area are 41-1AZ Mexican Oak-Pine Forest and Oak Savannah 16-20" precipitation zone and 38 Mogollon Transition, Middle Mogollon Transition 38.2 16-20" precipitation.

toward or away from the potential natural community and is based on a comparison of change over time.

Affected Environment

Predominant vegetation communities on the Two Troughs Allotment include Semi-Desert Grassland (73%), Madrean Encinal Woodland (10%), and Interior Chaparral (8%). Desirable perennial grass species found at key area monitoring locations are black grama, sideoats grama, Arizona cottontop, and cane beardgrass.

The Seventy Six Allotment predominant vegetation communities include Madrean Encinal Woodland (64%), Madrean Pinyon-Oak Woodland (21%), and Interior Chaparral (12%). Key desirable forage species at long-term monitoring sites include sideoats grama, green sprangletop, cane beardgrass, blue grama, black grama, hairy grama, and plains lovegrass.

The Cedar Springs Allotment predominant vegetation communities include Madrean Encinal Woodland (43%), Interior Chaparral (29%), and Semi-Desert Grasslands (11%). Key perennial forage species at monitoring sites include sideoats grama, hairy grama, plains lovegrass, and cane beardgrass.

Rangeland ecological monitoring was conducted on all three allotments numerous times since 2001 using protocols outlined in the Region 3 Rangeland Analysis and Management guide. Data collected over that time period includes long term vegetation condition and trend monitoring, forage utilization data, soil ground cover, soil condition and structural range improvement condition inspections. Vegetation condition is based on the similarity index of the site as defined in the appropriate Natural Resources Conservation Service's Ecological Site Description. Vegetation condition is displayed in three categories; low similarity, mid similarity and high similarity. All three allotments are largely meeting or moving towards forest plan standards. Monitoring results are summarized below by allotment.

The **Two Troughs Allotment** has one long term monitoring area where data has been collected since 2006. Data from that site show vegetative conditions holding static at a mid-similarity index with a static trend. These conditions are similar to those found across the allotment. Indicators of watershed health, such as litter and bare soil measurements are satisfactory and trends are static or increasing.

The **Cedar Springs Allotment** has one long term monitoring area where data has been collected since 2008. The results of the transect monitoring have consistently been on the higher end of a mid-similarity index with an upward trend. This trend was observed the last time the transect was read in 2013, when the results showed the site had moved into a high-similarity index. These conditions are similar to those found across the allotment. Indicators of watershed health, such as litter and bare soil measurements are satisfactory and trends are static or increasing.

Eureka Canyon is the only drainage on the allotment that is mapped out as a riparian area. This area was monitored in 2015 for riparian condition and found to have a diverse age class of riparian species.

The **Seventy Six Allotment** has three long term monitoring areas. On the Mine Key 1 site the rating was mid-similarity index with a static trend. The Van Valer site has a low-similarity index due to the site having a mono-culture of Lehmann lovegrass; the trend on

this site is static. Soil cover is increasing where lovegrass is present and contributing to watershed protection. The third site is named Babcock, which is also in a mid-similarity index. The trend for this site is somewhat undetermined because of this site was recently established. Indicators of watershed health, such as litter and bare soil measurements are satisfactory and trends are static or increasing.

South Taylor Canyon is the only drainage on the allotment that is mapped out as a riparian area. This area was monitored in 2015 for riparian condition and found to have a diverse age class of riparian species.

Environmental Consequences

Factors other than grazing also affect rangeland vegetation condition. In the Pinaleño Mountains, foremost among these is the widespread occurrence of Lehman lovegrass, a non-native species. Rangeland condition is estimated based on the composition of native grasses; the presence of non-native species will lower vegetation condition ratings because non-native species are not included in condition scores. The presence of Lehman lovegrass will likely continue to suppress condition scores regardless of grazing management. It should be noted that Lehmann lovegrass can contribute positively to actual rangeland condition through accumulations of litter on the soil. Fluctuations in rainfall patterns also affect vegetation condition. In general, cool season moisture will favor the establishment of shrubby vegetation, and summer monsoonal storms will favor the establishment and growth of warm season grasses. Long term drought will favor the persistence of deep rooted shrubs over shallow rooted bunchgrasses.

Alternative 1 - No Action

Monitoring indicates that most sites within the project area are at or near their ecological potential or that conditions are affected by high amounts of Lehmann lovegrass. Under this alternative, the presence of Lehmann lovegrass would likely continue to suppress conditions. Removal of livestock does not automatically cause a change in species composition. Most sites dominated by Lehmann lovegrass are stable sites and would need a substantial event such as spraying, disking and reseeding to transition to another stable ecological condition dominated by more desirable species. Thus most areas would remain in the similar ecological condition as they are presently.

Alternative 2 – Proposed Action

Although grazing use could occur during April, it would still predominately take place during the dormant season, although some early green-up may occur in April before going dormant again in late May and June. Light to moderate use levels would continue. The permittee would be authorized to use the allotment for 5 months during the 6-month period with the same number of livestock or to use it for the full 6 months but with fewer animals. Thus the total number of head months would remain the same as current management. There could be a slight difference on forage species selection depending on the time livestock are grazing a certain allotment. However, at the same prescribed use levels there would be no measurable difference between the current season of grazing and the proposed action with the extended season in regards to the vegetation component.

Light to moderate grazing intensities and regular growing season rest would be used to provide for grazed plant recovery, increased plant vigor and retention of sufficient herbaceous vegetation to protect soils and to provide herbaceous cover for wildlife. Existing structural range improvements would be maintained and new improvements would be constructed to improve management of the allotments. Management alone may not be sufficient to result in substantial changes in vegetation condition where there is the presence of Lehmann lovegrass, since a shift in species composition would be necessary.

Installing the proposed water facilities would provide a more reliable, permanent source of water; it would allow livestock to use allotments on a consistent basis and aid in distributing the grazing pressure across the allotments. This would aid in providing proper use in areas currently receiving little to no use and would reduce the likelihood of some localized areas being overused. Soil and plant disturbance along the pipelines would be visible for a few years until the sites have had time to revegetate. Most pipelines are not visible or detectable after 3 or 4 years.

Extending the grazing season would allow greater flexibility in management across the ranch as a whole unit. There would be no increase in cattle numbers and grazing would still occur inside the dormant season to allow vegetation 6 months of rest, which includes rest during the critical summer growing season.

Where riparian vegetation exists, annual growing season rest on all three allotments will continue to promote riparian tree recruitment. Soils and herbaceous vegetation would continue to be affected especially later in the grazing season when cattle seek shade in riparian bottoms. Since current management is maintaining riparian conditions, continued use is not expected to result in substantial new effects. Proposed new waters are intended to pull cattle out of the bottoms and reduce use in these areas.

Cumulative Effects

The effects of past activities have impacted the vegetation resources within the project area by changing species compositions away from historic climax communities. However, monitoring data over the past 10-15 years has shown that most of the vegetation across the three allotments is in a mid-similarity condition. This condition trend is static and has been for the duration of the monitoring period. The proposed action would continue the same dormant season livestock use with the benefit of added livestock water for increased livestock distribution. The light to moderate use levels along with the yearly growing season rest should mitigate any effects of livestock grazing that would lead to any cumulative effects.

Invasive species is concern throughout the project area and all of Arizona. Lehmann lovesgrass is one of the most prolific invasives in this part of the state and is present on all three allotments in the project area. With or without grazing, this plant will continue to spread and outcompete native species. There are not any other known invasive species in the project area and if they were to be observed, the district would employ an early detection, rapid response tactic to eradicate the population. Roads and trails will also continue to be vectors for invasive plant dispersal, however this will occur with or without livestock grazing. The mitigation of this dispersal would again be early detection and rapid response

to any infestation. This early detection and rapid response along with the best management practices mentioned in Chapter 2 will mitigate any cumulative effects.

Wildfires will continue to be a common occurrence throughout the project area and the mountain range. The project area is comprised of fire adapted vegetation communities that need fire to maintain overall ecosystem health. When a fire does occur, a site specific analysis would be done to determine overall range readiness for the return of livestock grazing to the area affected. Through the utilization of monitoring and adaptive management, livestock grazing should not contribute to the cumulative effects of wildfire.

Water Quantity and Quality

Affected Environment

The project analysis area is located within three 5th Code Watersheds: Black Rock Wash of the Gila River (HUC 1504000508), Upper Aravaipa Creek (HUC 1505020304), and the Grant Creek (HUC 1505020102). Table 8 shows the allotment acres by 5th code watersheds. The three 5th code watersheds are large in overall size, totaling approximately 566,701 acres, and the three allotments make up approximately 11.76% of the total acres of the three watersheds.

Table 8. Allotment acres by 5th Code Watersheds

Allotment	Black Rock Wash - Gila River (1504000508)		Upper Aravaipa Creek (1505020304)		Grant Creek (1505020102)		Total
	Acres	Percent*	Acres	Percent*	Acres	Percent*	Acres
Two Troughs	3,546	100%	0	0%	0	0%	3,546
Cedar Springs	2,942	62%	1,809	38%	0	0%	4,751
Seventy Six	0	0%	4,019	56%	3,102	44%	7,121
TOTAL	6,488		5,828		3,102		15,418

*Percentages are rounded and may not add up to 100%

Each 5th code watershed contains several 6th code watersheds. Table 9 shows acres of the allotments within each of these 6th code watersheds, and the percent of the watershed that contains some of the allotment area. As shown in these tables, the allotments themselves represent a small percentage of the total watershed acres.

Table 9. Allotment acres by 6th Code Watersheds

Allotment	Underwood Wash-150400050802		Sheep Wash-150502030404		President Canyon-Aravaipa Creek-150502030405		Tripp Wash-150400050801		Durkee Canyon-Aravaipa Creek-150502030402		Goudy Canyon Wash-150502030402		South Taylor Wash-1502010203		Total
	Total Acres: 23,316		Total Acres: 12,600		Total Acres: 24,519		Total Acres: 15,647		Total Acres: 29,440		Total Acres: 19,296		Total Acres: 8,640		
	Acres	%*	Acres	%*	Acres	%*	Acres	%*	Acres	%*	Acres	%*	Acres	%*	Acres
Two Troughs	29	0.1%	-	-	-	-	3,517	22.5%	-	-	-	-	-	-	3,546
Cedar Springs	1,694	7.3%	1,807	14.3%	2	0.0%	1,248	8.0%	-	-	-	-	-	-	4,751
Seventy Six	-	-	201	1.6%	1,870	7.6%	-	-	1,948	6.6%	1,434	7.4%	1,668	19.3%	7,121
TOTAL	1,723		2,008		1,872		4,765		1,948		1,434		1,668		15,418

*Percentages are rounded and may not add up to 100%

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. No streams within the watersheds were classified as impaired during 2012/2014 assessment by ADEQ.

All 17 areas tested for soil condition across the three allotments were considered to be in satisfactory condition, which is the highest rating for soil condition. Satisfactory soil condition means that the soil is functioning within normal parameters, including soil hydrologic function. The soil hydrologic function refers to the ability of the soil to absorb, store, and transmit water, both vertically and horizontally. Runoff is within normal parameters, so flood events are less damaging.

Environmental Consequences

Water Quality. Surface water quality is affected by erosion of the soil surface. Adequate vegetation groundcover is necessary to slow the movement of water and trap and filter sediments. Under *Alternative 1 - No Action*, adequate diversity and vegetation groundcover would contribute to maintaining a satisfactory hydrological function and runoff would continue to be satisfactory. In areas that receive heavier livestock use due to less than optimal livestock distribution, the potential increase of vegetative ground cover and elimination of livestock-caused soil compaction would contribute to a gradual improvement in soil hydrological function resulting in less runoff, better infiltration and an improvement in water quality due to less sediment and lower turbidity.

Under the *Alternative 2 - Proposed Action*, any heavily grazed areas would continue to contribute small amounts of sediment downstream and surface runoff would be expected to be slightly greater, relative to no grazing, due to poor Vegetative Ground Cover (VGC) in those areas. Under the proposed action, which promotes better livestock distribution, the heavily grazed areas may gradually develop an improved vegetative cover and soil condition,

resulting in eventually less sediment introduced downstream and less runoff over time from these areas.

Water Quantity. Under *Alternative 1*, there would be no livestock grazing. The resulting adequate vegetative groundcover would contribute to satisfactory hydrological function such that runoff would be within normal parameters. Water currently consumed by or diverted and stored for livestock would be returned to the system, but this accounts for less than two percent of the total water yield on the analysis area and is unlikely to be sizable.

Under *Alternative 2 - Proposed Action*, light to moderate use should provide sufficient residual plant material to protect uplands and drainages and contribute to soil stability over time. Sufficient residual plant material means that the size and volume of the residual plants provide adequate protection to the soil from rainfall. Additionally, the residual plants have sufficient root volumes to hold the soil in place. The size and amount of plant left behind by grazing animals has a direct effect on root volume. The bigger and more robust the plant is, the greater its root mass will be. By keeping the grazing use at light to moderate, sufficient plant volume would be left behind to both protect the soil from rainfall and hold the soil in place with root matter.

Also under the proposed action, existing water developments would divert and store some water that would otherwise percolate back into the ground and support sub-surface flow. Livestock would consume some of the stored water. The conservative volume of water projected to be withdrawn to satisfy the needs of the proposed stocking rates of livestock is less than two percent of the total volume of water which is annually recharged from precipitation. No new wells are being proposed, water from existing wells would be dispersed to more areas across the allotment and there is no increase in cattle numbers. As compared to *Alternative 2*, however, the permittee would draw water for livestock use, whereas *Alternative 1* they would not. However, as discussed previously, the amount of water drawn for livestock use with the proposed action represents less than two percent of the total volume of water which is annually recharged from precipitation. So, the difference between the two alternatives, in relation to watershed effects from water quantity use, is not projected to be substantial. As noted in Tables 8 and 9, the allotments themselves represent a small percentage of the total watershed acres. As a result, the potential impact of any particular allotment on a particular 6th code watershed as a whole can be expected to be fairly minimal since the allotment area within the watershed is relatively small as compared to the total watershed size. Therefore, there would be no direct, indirect or cumulative effects to the Water Quality or Quantity.

Special Management Areas

Affected Environment

The Pinaleño Mountains contain large roadless areas and the Mount Graham Wilderness Study Area. The 61,315-acre Mount Graham Wilderness Study Area circles the high peaks of the ecosystem management area. These areas offer opportunities for backcountry hiking and solitude. The Wilderness Act of 1964 allows for grazing in wilderness areas as long as grazing was established prior to September 3, 1964. For the purpose of this proposed action and analysis, management within the Wilderness Study Area would follow Congressional Grazing Guidelines in National Forest Wilderness Areas (FSM 2323.22 –Exhibit 01). Only

the Seventy Six Allotment overlaps with the Wilderness Study Area (approximately 487 acres).

The 130,852-acre Pinaleño Inventoried Roadless Area covers the majority of the Pinaleño Ecosystem Management Area (EMA). The three allotments include a combined total of 8,756 acres within the Pinaleño Inventoried Roadless Area (IRA), which comprises 6.7% of the IRA.

Environmental Consequences

The selected alternative would reauthorize grazing on the Seventy Six, Two Troughs and Cedar Springs Allotments, and involves extending the grazing season by one month to increase management flexibility. Although the permitted season of use would be extended one month, the permitted Animal Unit Months (AUMs) would remain the same.

One structural range improvement is proposed within the IRA. A new polypipe pipeline would be placed from Lindsay Well #409009 for approximately 2.5 miles to the southeast onto the Seventy Six Allotment where a new water facility would be located, including a drinker and storage tank. No improvements are proposed within the Wilderness Study Area. All proposed locations of improvements are estimated in Figures 2 through 4.

An evaluation of potential effects to roadless area characteristics is located in the project record. Neither alternative would result in road construction or the sale, removal, or cutting of timber inside any of the special management areas on the Pinaleño EMA. Therefore, there would be no adverse effects or cumulative effects on the Wilderness Study Area or the IRA.

Cultural Resources

Affected Environment

Cultural resources include archaeological and historical sites, and properties important to maintaining the traditional beliefs and lifeways of local social groups ("traditional cultural properties"). Under Section 106 of the National Historic Preservation Act, the Forest Service has the responsibility, in consultation with the State Historic Preservation Officer, Tribes, and other interested parties, to identify historic properties within the area of potential effect and to determine the effects that the proposal could have on cultural resources. While there are no known historic or archaeological sites within the three allotments, historical accounts and sites recorded in other parts of the Pinaleños indicate the possible presence of a wide range of cultural resources. Previous archeological investigations resulted in the identification of over 150 archeological and historical sites on National Forest System lands in the Pinaleño Mountains, although the mountain range has not been extensively surveyed. The Pinaleño Mountains are considered eligible for listing on the National Register of Historic Places (NRHP) as a Western Apache Traditional Cultural Property, known as *Dził nchaa si'an*.

Environmental Consequences

Under *Alternative 1*, no direct or indirect effects from livestock grazing on cultural resources would occur following removal of cattle from the allotments.

Although the potential for impacts exists under *Alternative 2*, surveys conducted as part of this analysis did not identify ongoing impacts related to current grazing. The area of potential

effects for the proposed improvements was surveyed for the presence of cultural resources and no cultural resources were identified in these areas. Under this alternative, direct effects would be the same as the direct effects under the current grazing allotment permit guidelines; they would be temporary and consist of limited disturbance. However, since cultural resources are prevalent throughout the mountain range, it is possible that cattle could congregate on an unknown site. When these locations are found, mitigations in Chapter 2 would be sufficient to minimize the effects to such resources.

Due to the determination that no cultural or historic properties would be affected, consultation with the State Historic Preservation Office was not required for this project (Cultural Resources Report #2016-05-048).

Cumulative Effects

The cumulative effects boundary for cultural resources is limited to the area encompassed by the Safford Ranger District. All previous projects (within the last 20 years) have been completed with a reasonable and good-faith effort to comply with Section 106 of the National Historic Preservation Act and all future projects would also comply. Avoidance of adverse effects to cultural resources is expected for all present and foreseeable projects. Cumulative effects on cultural resources on the Safford Ranger District now and into the future may arise as a result of natural disasters and/or accidents, not from project level work.

CHAPTER 4 – CONSULTATION AND COORDINATION

The Forest Service consulted the following Federal, State, and local agencies and organizations during the development of this Environmental Assessment.

Several individuals not specifically identified below also participated in this process.

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
Graham County, Arizona
USDA Natural Resource Conservation Service
USDI Fish and Wildlife Service

Due to the determination that no cultural or historic properties would be affected, consultation with the State Historic Preservation Office was not required.

TRIBES:

Fort Sill Apache Tribe
Mescalero Apache Tribe
San Carlos Apache Tribe
White Mountain Apache Tribe
Hopi Tribe
Pueblo of Zuni
Tohono O'odham Nation
Yavapai Apache Nation

Ak-Chin Indian Community	Pascua Yaqui Tribe
Gila River Indian Community	Salt River Pima-Maricopa Indian Community

On June 30, 2016, a letter and scoping notice was sent to the twelve tribes listed above. Three tribes responded to the consultation.

On September 25, 2018, a letter was sent to the same twelve tribes notifying them of the opportunity to review and comment on the draft environmental assessment. Three tribes responded to the consultation.

OTHERS:

National Wild Turkey Federation	Sky Island Alliance
The Center for Biological Diversity	Arizona People for the USA
Forest Guardians	The Rewilding Institute
Arizona Cattlegrowers Association	Jeff Burgess