

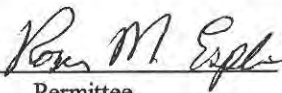
Youngs Canyon Allotment Management Plan

Peaks Ranger District

Coconino National Forest

Prepared by: 
District Range Staff

Date 4/24/02

Agreed to/Reviewed by: 
Permittee

Date 4.24.02

Approved by: 
District Ranger

Date 4-24-02

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DESIRED CONDITIONS

The following description of desired future conditions are based upon broad management direction (Forest Land Management Plan, all applicable laws, Forest Service Regional direction) and the site-specific conditions of the area.

In the future, the desired conditions for this area will include the following:

Watershed / Soils - Satisfactory soil conditions remain satisfactory. Improve impaired soils on the allotment within alluvial bottom by increasing ground cover (plants and litter). Ensure cattle management maintains or improves watershed conditions. Ensure pinyon and juniper expansion does not bring soils to an impaired condition.

Air Quality - Airsheds continue to meet State Implementation Plan (SIP) attainment levels. Broadcast burning within this allotment will stay within these attainment levels. Proper burning permits and smoke monitoring will insure air quality standards are met.

Wildlife Habitat - Wildlife habitat meets the needs of game and non-game species including threatened, endangered and sensitive species. Where wildlife habitat needs improvement (mainly within alluvial bottom, cleared pinyon and juniper areas and some increasing juniper areas), increase forage and cover species (production, diversity and vigor). In cleared areas and the east side of allotment, decrease rabbitbrush, pinyon and juniper to maintain open habitat. Ensure cattle management and juniper expansion maintains or improves wildlife habitat.

Heritage Resources - Heritage resources are located, documented and avoided by ground disturbing activities. There will be no effects to heritage resources. Contemporary American Indian medicinal plant populations are healthy and stable.

Recreation Use - A variety of low to moderate impact, dispersed recreation opportunities exist on the Youngs Canyon Allotment. Activity levels continue to be moderate. Reduce or eliminate conflicts between recreationists and cattle when possible.

Rangeland Condition - Maintain or move toward the desired natural community type of a pinyon and juniper grassland that has a diverse and productive grass, forb and shrub understory. This desired community is near the potential natural community except in some alluvial bottoms, cleared pinyon and juniper areas, and some areas of increasing pinyon and juniper. All these sites need an improvement in ground cover species diversity and production. Improvements within these areas would maintain and/or move this allotment towards satisfactory rangeland management status. Maintain full capacity rangelands. In the potential capacity area of the allotment, which has impaired soils, increase ground cover to bring the soils into a satisfactory condition. Throughout the allotment, insure vegetation species are diverse, vigorous and productive. Maintain forage production at current levels or higher. Maintain or improve trend at static to upward. Where possible from other resource projects such as further prescribed burning or tree thinning, reduce pinyon and juniper to increase forage. Cattle grazing is managed to use the forage capacity produced, with consideration for wildlife forage and cover

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needs and watershed stability and water quality (35% use standard by cattle and elk throughout the allotment). In addition, grasses are available as fuel to carry fires needed to meet landscape goals. Noxious weeds are absent or controlled as a minor component of the vegetation.

Social / Economic Conditions - Maintain or improve native vegetation for Forest visitors to use and enjoy. Move toward these desired conditions and where possible maintain ranching life-styles from the ranching operation for up to ten years. In the next ten years within the Youngs Canyon Allotment, reduce or eliminate conflicts, when possible, between cattle, expanding tourism and the community of Flagstaff.

PROJECT OBJECTIVES

The following list of project objectives, or goals, to move toward the desired conditions for the rangeland ecosystem on the Youngs Canyon Allotment.

Maintain or improve watershed and soil condition by maintaining or increasing effective ground cover vegetation and implementing Best Management Practices (BMP's) for proper grazing use and livestock distribution.

Move toward or maintain a desired plant community, near the potential natural community, of pinyon and juniper grassland with a productive grass, forb and shrub understory. The desired plant community differs from the potential natural community by less pinyon and juniper in some areas to produce a more diverse and productive ground cover.

Improve forage production in some of the more densely treed sites and sites of current low forage production.

Where possible, allow livestock grazing use for up to ten years with consideration of identified resource and social needs for the Youngs Canyon Allotment and the surrounding communities.

Assure 35% current forage cattle and elk meet use standards. At key habitat areas, monitoring points will be established or maintained within the allotment. Reduce cattle numbers or season of use to meet these use standards, if needed.

MANAGEMENT STRATEGY

- Permit grazing for up to a ten-year period. The exact length of the permit will depend on the permittees ability to properly manage the allotment.
- Remove the Walnut Canyon National Monument portion of the Youngs Canyon Allotment (approximately 510 acres) from the carrying capacity of allotment.

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Grazing of this area will continue through 2001 when the National Park Service plans to build their boundary fence.

- Maximum cattle numbers is 90 to 110 head of steers or 51 to 63 head of cows/calf's, from 5/15-10/31, using a four pasture deferred rotation grazing system. These cattle numbers are based on past stocking rates and carrying capacity estimates. Graze periods in each pasture is approximately 46 days each year.
- Assure 35% forage use standard is met for cattle and elk. Key areas monitoring points will be established within the allotment. Reduce cattle numbers or season of use to meet these use standards, if needed.
- Rehabilitate the Youngs Canyon holding pasture. Change cattle use from continuous use to 15 days per year. Shape sheer channel banks. Plant western wheatgrass. This project will cost approximately \$2000. The Forest Service will shape the banks and provide the grass seed.
- The Parker Three Step Clusters, frequency and canopy cover plots were done at existing Parker Three-Step Clusters sites in December 1999. Additional frequency plots will be established in areas of concern or in areas where changes in trend is expected or needed. At least two additional frequencies, canopy cover and ground cover plots will be established within impaired soil sites.
- Cut and broadcast burn approximately 5,322 acres of the allotment, see Map 2. Cliffrose will be avoided during burning. Burning will occur when fuel loading exceeds 10#/acre and in high-density rabbitbrush areas.

Previous cleared pinyon and juniper areas (approximately 1,140 acres) will be cut and burned to reduce young (less than 30 years old) pinyon and juniper trees and to reduce rabbitbrush. These previously cleared areas exist in the central and western portions of the allotment and vary from 20 to 300 acres in size. These sites are mostly irregularly shaped and linear. The desired conditions for these alluvial bottoms are managed for a diverse grass and shrub community. This will maintain and improve forage conditions for cattle, elk and antelope.

Young pinyon and juniper trees (less than 80 years old) will be cut and burned from approximately 2,240 acres on the northeast corner of the allotment. We will be avoiding cinder hills, Youngs Canyon, an electric substation and 100-acre patch of old trees. This will create two approximately 1100 acre irregularly shaped patches of open savanna like grassland. Scattered individual and clumps of trees (the largest trees available) will be scattered across this landscape to create this open savanna like grassland. This treatment will maintain and improve forage conditions for cattle, elk and antelope.

On old fuelwood cuts, pinyon and juniper trees will be cut and burned from the southeast corner of the allotment on approximately 880 acres. These cuts will be

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patches ranging from six to 600 acres in size and irregularly shaped. No trees will be cut over 12 inches in diameter. Openings will not exceed four acres. The residual condition will be a moderately forested pinyon and juniper woodland with emphasis on improving conditions for cliffrose, with all age classes of pinyon and juniper present. This will maintain and enhance habitat for wintering deer herds.

On previously untreated areas, young pinyon and juniper trees will be cut and burned from the southeast corner of the allotment on approximately 1,062 acres. These cuts will be patches ranging from seven to 20 acres in size and irregularly shaped. No trees will be cut over 12 inches in diameter. Canyons and steeper slopes will be avoided. Openings will not exceed four acres. This will create a moderately forested pinyon and juniper woodland with all age classes of pinyon and juniper present. Treated areas will retain the majority of larger and older trees. This will look different from the surrounding areas because there are older trees in these areas. The emphasis for this treatment will be to improve conditions for cliffrose. This will maintain and enhance habitat for wintering deer herds.

In all treatment areas, approximately 3-5 tons of tree slash will be left on the ground for nutrient cycling, soil stability, small mammals and birds. Burning would be designed to remove only the trees or rabbitbrush without removing ground litter below 3-5 tons per acre. The cost of cutting and burning in the areas of young trees will be approximately \$30 per acre of a total of approximately \$160,000. An estimated additional cost of \$44,800 will be needed to complete archeological surveys in these areas. The Forest Service will conduct these projects.

- A trick tank drinker system will be built near Youngs Canyon Dam. This system will provide water to all four pastures. This project will cost approximately \$13,000, roughly half by the Forest Service and half by the permittee. The fence around the trick tank will have a minimum bottom wire height of 18" above the ground to facilitate antelope use.
- If road funding becomes available, build a low water crossing where Forest Road 128 crosses Youngs Canyon at the old Youngs Canyon Dam site. This crossing would stop erosion at the dam site. This project will cost approximately \$10,000 and will be done by the Forest Service.
- Noxious weed inventories and treatments will be needed on the allotment over the next 10 years. Populations of scotch thistle, diffuse knapweed and other potential noxious weeds will be pulled, cut, mowed, dug or burned before seed set to reduce future spread of these species. Competitive species will be seeded around disturbed sites where needed. Special attention will give to all new disturbance areas including burning. Noxious weed inventories and treatments will cost approximately \$100 per year and will be done by the Forest Service.

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- Monitoring costs: continue on-going elk/cattle monitoring effort at \$300/year (half Forest Service, half permittee), additional condition and trend monitoring at \$200/year and administrative costs.
- Maintenance will be done on all new and existing structural improvements including barbed wire fences, trick tanks, stock tanks and drinkers, as needed by the permittee. The bottom wire of new fences will be smooth and be a minimum height of 18 inches to facilitate pronghorn passage.

Additional Management Items

Old Growth: The Forest Plans directs that stand size for old-growth pinyon/juniper on slopes less than 40% should be maintained between 100 and 300 acres and greater than or equal to 5 chains wide, or closely grouped stands that provide contiguous habitat for interior-dwelling species. Old growth contains large trees, snags and downed logs.

Alligator Juniper: In areas where alligator juniper trees comprise less than 50 percent of the total basal area, retain live alligator juniper trees greater than or equal to 12 inches. Since tree thinning will only remove trees less than 12 inches in diameter at the base of all larger alligator juniper will be maintained.

Pine Stringers: At least 20 percent of the area within a 20 chain zone adjacent to pine stringers is managed for dense mature or over-mature stands of pinyon/juniper.

Wildlife Cover: Cover corridors are laid out to connect treated areas or breaks in terrain to provide interconnecting cover corridors. Known or suspected routes of game travel are used to lie out cover corridors. Emphasize cover management in travel ways, bedding areas, reproductive areas, and adjacent to dependable waters and key openings. Manage for hiding and thermal cover in known fawning and calving areas. Cover is managed to provide at least 60% crown cover and at least 8 chains wide. Leave untreated areas adjacent to deep, steep canyons or bluffs. Manage for small game and non-game by leaving an average of one slash pile per three acres in the woodland type and/or leave lopped and scattered slash on 30 percent of areas harvested.

Annual Operating Instructions: Annual operating instructions make adjustments to cattle numbers, and time and duration of pasture use based on current climatic and range conditions. Making these plans each year and adjusting throughout the season as conditions change adds needed flexibility to the action alternatives.

Roads and Cattle Guards: Common to all alternatives is the need to keep forest users from leaving gates open. Where roads are maintained as open, cattle guards will be put in place. Where roads are identified for closure, in past and future road decisions, no cattle guard is necessary.

Cattle Guard Maintenance: Cattle guard maintenance is shared between the Forest Service and the permittee for level 3 roads (main surfaced roads). Cattle guard

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maintenance on level 2 roads (secondary smaller roads) is the responsibility of the permittee.

Implementation of Structural Improvements and Vegetation Treatments: Common to all alternatives is the need for cultural, wildlife and recreation coordination when implementing the grazing system and vegetation treatments. Structural improvements such as fencing, stock tanks and cattle guards will be used to implement the grazing plan. During the life of the permit, there may be additional or fewer improvements needed based on adapting to changes and meeting the goals of the new system. The following parameters need to be followed when implementing structural improvements and vegetative treatments.

Cultural Resource Coordination: A programmatic cultural report has been completed and approved by the State Historic Preservation Office (SHPO). Using the parameters described in the programmatic report, conduct survey and obtain clearance prior to any ground disturbing activities related to structural improvements.

Threatened, Endangered and Sensitive Species Coordination: Additional very site-specific biological assessments and evaluations will be written for chosen actions. Refer to and follow any mitigation measures or implementation parameters described in the biological assessments and evaluations written for the selected alternative. Location of improvements may be altered somewhat in response to species considerations. Involve a wildlife biologist prior to final planning of any new improvements.

Recreation and Special Use Guidelines: Timing of the construction of new range structures must be coordinated with the recreation specialists and special use permit holders.

Fencing: All new fencing will contain a smooth bottom wire and 18 inch minimum bottom wire height for wildlife. Conduct cultural resources and threatened, endangered and sensitive species coordination as described above. Where possible, locate fences within tree lines to limit impact to visual quality. Elk jumps may be constructed along new fences and along existing fences as appropriate.

Monitoring: Common to all alternatives are monitoring items chosen by the team to answer questions and check progress of improvement. The following is a list of the main items that will be monitored in the action alternatives: compliance, allotment inspections, range readiness, forage production, rangeland utilization, condition and trend, precipitation, noxious weeds and soil condition (see Monitoring section (chapter 4) for more specific information).

Mitigating Measures: In addition to implementation of Best Management Practices, the following mitigating measures are to be followed. Follow utilization guidelines to provide for favorable growth of forage species. If utilization guidelines are exceeded, stocking and management may need to be adjusted to maintain productivity of the pasture for the future. Livestock distribution techniques, such as intensified salting and herding should be used, to provide for better use of a pasture. Slash will avoid

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cliffrose where possible and slash with cliffrose in it will not be burned. Existing snags will not be cut and will be protected during burning. Cuts in deer habitat will be no greater than ¼ mile wide where possible. Tires and boots will be cleaned prior to leaving noxious weed areas. Revegetation will occur within thinned and burned sites to promote competition with noxious weeds. Burning and re-cutting of the 1,140 acre and 2,240 acre parcels will occur outside fawning season of April 15-June 15.

Research Coordination: A 300-foot buffer will be put in around all research study plots in pinyon and juniper treatment areas.

Other Management Items: Salting occurs throughout the allotment, but is not used in northern goshawk PFAs, meadows, burn areas or locations closer than 1/4 mile from water. Grazing systems are alternately rested and grazed in a planned sequence. Rotate livestock in a planned grazing system that alternates rest and graze period throughout a given year and from year to year. No new livestock tank construction, pipeline construction, and water lot development is planned for any alternatives. Livestock and wildlife use is well distributed by water sources throughout the allotment.

Project Design: Layout projects to appear as natural configurations of the woodland.

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MONITORING

Monitoring on this allotment over this year and up to the next 10 years will include: compliance, allotment inspections, range readiness, forage production, rangeland utilization, condition and trend, soil condition, noxious weeds and threatened and endangered species.

Compliance: Throughout each grazing season Forest Service personnel to determine accomplishments of terms and conditions of this permit, Allotment Management Plan, and annual operating instructions will do compliance monitoring.

Allotment Inspections: Allotment inspections are a written summary done each fall by Forest Service personnel to document compliance monitoring and to provide an overall history of that year's grazing. This document may include weather history, the year's success, problems, improvement suggestions for the future, and monitoring summary.

Range Readiness: Each spring, Forest Service personnel will determine range readiness by assessing vegetative conditions. The range is generally ready for grazing when cool season grasses are leafed out, forbs are in bloom, and brush and aspen are leafed out. These characteristics indicate the growing season has progressed far enough to replenish root reserves so that grazing will not seriously impact these forage plants.

Forage Production: Production surveys for the allotment will be done every nine to 13 years. Cattle numbers could be adjusted as a result of evaluating these figures.

Rangeland Utilization: Utilization monitoring is an estimate of the available forage by weight consumed or trampled through grazing and is expressed as a percent of current years biomass removed. Utilization monitoring is designed to assess key forage utilization levels by cattle and elk during the year and from year to year. Key forage species for this allotment include blue grama, squirreltail and western wheatgrass. Utilization monitoring will be conducted by the permittee and spot checked by Forest Service personnel throughout the year in every grazed pasture. This monitoring will calculate an overall utilization value for a pasture 1) before cattle go into a pasture, 2) within five days after cattle leave a pasture, and 3) at the end of the growing season in the fall. Utilization will be averaged into the following five categories: no-use (0-10%), light (11-20%), moderate (21-50%), high (51-70%) and extreme (71%+). The goal for utilization will be 35% or less by cattle and elk throughout the year with this intensive livestock grazing system. Key areas will be setup, at a minimum, within an impaired alluvial soil bottom.

Key areas will normally be 1/4 to one mile from water, located on productive soils on level to intermediate slopes and be readily accessible for grazing. Size of the key forage monitoring areas could be 20 to 500 acres. In some situations such as high mountain meadows with perennial streams, key areas may be closer than 1/4 mile from water and less than 20 acres (Coconino National Forest Plan 1987, as amended).

Condition and Trend: Ecological condition and trend monitoring will help determine the effectiveness of the Allotment Management Plan and long-term trend. In the past we

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have used Parker 3-step and paced transects to determine condition and trend. We now have better monitoring techniques for ecological condition and trend.

The Region 3 Terrestrial Ecosystem Survey (TES) has mapped and described the potential vegetation and soils for this allotment. TES presents a benchmark against which we can measure our current condition, and assess the impacts of our proposed management. This enables us to quantify the benefits or trade-offs of different alternatives, helping us to determine which plant community(s) maximize our management objectives.

Ecological Condition: Estimated plant community canopy cover, similar to TES plant community descriptions, will be used to assess current vegetation conditions. We will analyze the data using a similarity index that meets our objectives. We will determine ecological similarity of the plant communities and a species by species similarity calculation. We will look at herbaceous canopy cover for our assessment purposes and calculate similarity of total canopy cover of herbaceous species. For species richness we will compare species presence or absence. Southwestern Region, Rangeland Analysis and Management Training Guide (6/97) describes similarity calculations.

To make our assessments more consistent across northern Arizona forests, a basic set of standard methods will be used. Data will be collected in three parts:

1. General Information: location, plot size, aspect, slope, elevation, geology, erosion, ground cover, fuel model information, evidence of disturbance(s), canopy cover by life form, basal area, RMRIS cover type, VSS class, and production.
2. Ocular Plant Composition: All plants will be identified to species (if possible). Estimates of canopy cover by percent categories and height will be recorded for each species. Percent canopy cover categories are those used by TES. For woody species, live and dead may be separated, and additional estimates may be recorded: diameter, crown base height, maturity, age and vigor.
3. Soil Condition Rating Guide: see FSH 2509.18. Information will be recorded on hydrologic function, stability and nutrient cycling of the soil.

Trend: Ecological trend will be measured using plant frequency methods. *Some Methods for Monitoring Rangelands and other Natural Area Vegetation*, 1997, edited by G.B. Ruyle; Cooperative Extension, College of Agriculture, University of Arizona, Tucson; Extension Report 9043; Chapter 2 - Plant Frequency Sampling for Monitoring Rangelands is the specific reference guide.

Plot Location and Sampling Intensity: Plot location and sampling intensity are important considerations when determining ecological condition and setting up long term trend monitoring. It is important the plots be located in areas that best monitor the impacts of our management practices.

Factors to be considered in determining sampling intensity are: complexity of sensitivity of known or anticipated resource use conflicts or controversy, diversity of vegetation types, ecological status, trend, and the desired level of precision. Sampling intensity is dependent on the kind, quality, and quantity of data needed. In determining the sampling

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intensity, the examiner should weigh the desired level of inventory against funding and personnel capabilities.

Canopy cover plots should be read within TES map units that are affected by alternatives in an environmental assessment. The exact number of plots within each map unit is determined by factors listed in the previous paragraph.

Four Parker 3 Step plots exist on the Youngs Canyon Allotment. New monitoring plots were located over these old existing Parker sites. At a minimum, one new plot will be located within another impaired soil alluvial bottom site on the allotment.

Precipitation: Precipitation is currently recorded within or near this allotment at Flagstaff National Weather Service Office at Bellemont and Flagstaff Airport. We suggest that additional rain gauges be established at the Youngs Canyon Allotment headquarters or other convenient location on the allotment for a more accurate record of local precipitation. This data could be recorded throughout the year and summarized in the annual inspection.

Soil Condition: The Intergovernmental Agreement between the Forest Service and the State of Arizona that controls water quality and the Clean Water Act requires implementation and effectiveness monitoring. The objectives of monitoring are to: 1) collect data sufficient to assist line officers and resource managers in evaluating effects of management activities on soil and water resources; 2) support changes in management activities to protect soil and water quality. Monitoring will help determine how successfully managers are implementing Guidance Practices and how effectively those practices are protecting soil and water quality. Arizona Department of Water Quality (ADEQ) will continue to monitor water quality in the area (see-attached table "Water Quality Status of Watersheds Affected").

Evaluating watershed condition can be assessed using information from the monitoring schemes above. Monitoring of plant abundance, ground cover, species diversity and estimates of overall soil condition (using the methods throughout this monitoring section) will indicate whether or not management practices are effectively meeting management goals. Trends toward improvements in species abundance and diversity should indicate that management practices are effectively improving soil condition and by inference, maintaining or improving downstream water quality and complying with water quality standards. Conversely, decreases in plant abundance and species diversity may indicate that management practices are not effective and need to be changed. Environmental factors, especially precipitation, will be considered when evaluating monitoring results.

At the end of 10 years, all planned improvements will be in place. Overall effectiveness will be evaluated on a yearly basis and intensively again at the end of the 10-year permit period. The annual operating plans will make adjustments to pasture graze periods, pasture rest periods and cattle numbers to respond to results of the previous year's annual monitoring, weather conditions, and as improvements are implemented.

A Fixed Station (Biocriteria Program) is located in the Little Colorado River (Canyon Diablo and Lake Mary) watershed several miles from the Youngs Canyon Allotment.

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These sites, like others throughout the Forest, have and are being used to track long-term conditions and trends at critical points in a watershed and to develop biological criteria for stream segments. Information from these sites will be considered in evaluating the effectiveness of management practices, but may be of limited value considering the multitude of influences affecting each monitoring site.

Noxious Weeds: Noxious weed inventories will be needed on the allotment over the next 10 years. These surveys will be done during normal monitoring visits to the area. Special attention will be given to all new disturbance areas (including burning), as well as known noxious weed sites.

Threatened, Endangered and Sensitive Species: Threatened, endangered and sensitive species monitoring is covered by the preceding monitoring schemes.

Rationale: This monitoring program gives this alternative the best data possible to monitor the effectiveness of this new management strategy while staying within the projected Forest Service budget. Forest Service, Youngs Canyon permittee(s) and Arizona Game and Fish Department will work together to collect this information.