2006

Deep Lake

Allotment Management Plan

Mormon Lake Ranger District

Coconino National Forest

Prepared by: _____ Date 1/5/07
District Range Conservationist

Agreed to/Reviewed by: _____ Date 1-5-07
Permittee

Approved by: _____ Date 1-29-07
District Ranger

Record of Decision Summary

This Allotment Management Plan (AMP) follows the "Record of Decision for the Deep Lake Allotment Management Plan" and the "Final Environmental Impact Statement" signed on 5/22/06 which includes the following:

- Issue 10-year grazing permit for the Deep Lake Allotment.
- This permit will allow up to 105 cattle (cow/calf) pairs from May 1 through October 31 (838 AUM's).
- The current utilization guideline will continue to allow up to 35 percent use by cattle and/or wildlife during the cattle grazing season of May through October. This includes a "moderate" seasonal utilization guideline which is measured before the end of the growing season and is used in determining when cattle need to move. Cattle will move from one area to another when seasonal utilization approaches a "moderate" level, approximately 21-50 percent. Areas will not be grazed again during the grazing season. Once this use standard is met across the allotment, cattle will be moved off the allotment.
- Fence seasonal and semipermanent wetlands and provide lanes to access water in stock tanks: A 2-mile exclosure fence will be built around Deep Lake to protect most of the emergent vegetation (52 acres) and surrounding upland buffer (156 acres) at this semipermanent wetland. The exclosure fence design will include two lanes for cattle to access stock tank waters (permittee water claims) from both the Deep Lake and Pickett Lake Allotment sides of the wetland. The two lanes will include at total of 10 acres of emergent spikerush vegetation and 31 acres of upland buffer. The excess allotment boundary fence in the middle of Deep Lake will be removed (0.3 mile of fence) once the exclosure is built.
- A 1-mile exclosure fence will be added onto the existing Horse Lake fence in order to protect all of the emergent vegetation (10 acres) and most of the surrounding upland buffer (8 acres) at the Horse Tank seasonal wetland. The exclosure will be designed to include a lane to Horse Tank, built on an existing elevated earthen berm of soil that has no emergent vegetation and 1 acre of upland buffer. The east side of the existing Horse Lake exclosure will be removed where the existing fence and new Horse Tank fence come together (0.5 mile of fence).
- Structural and nonstructural improvements: Five waterlots (fences) will be built around five stock tanks. These waterlots will be designed so water is accessible to wildlife, which will include a smooth bottom wire, 18 inches high, as well as wildlife jumps on all sides. The locations of these waterlots will allow the permittee to control access to water for cattle at these stock tanks.

Existing Improvements

- There will be continued management and maintenance on all real property as listed on the Deferred Maintenance Inventory and Certification for Range Improvements list.

Adaptive Management

- The reauthorization includes the continued use of adaptive management, which provides more flexibility for managing cattle. Adaptive management allows the Forest Service to adjust the timing and duration of grazing, movement of cattle within the allotment, and cattle numbers. If adjustments are needed, they are implemented through the Annual Operating Instructions, which will adjust numbers so cattle use is consistent with current productivity. This allows plant, soil, and watershed conditions to be maintained or improved while range improvements are implemented over time. An example of a situation that could call for adaptive management adjustments is drought.

- Adaptive management is designed to provide sufficient flexibility to adapt management to changing circumstances. If monitoring indicates that desired conditions are not being achieved, management will be modified in cooperation with the permittee. Changes may include administrative decisions such as the specific number of livestock authorized annually, specific dates of grazing, or class of animal, but such change will not exceed the limits for timing, intensity, duration, and frequency defined in this Management Plan.

Monitoring

- The monitoring section of this AMP is given near of end of this document.

Mitigation

The Forest Service will apply the following mitigation measures to minimize and reduce potential impacts from grazing management activities.

1. **Watershed Protection:** The grazing system incorporates Best Management Practices (BMP) and constitutes compliance with Arizona State and Federal Water Quality Standards. The following BMPs, applicable to this project, are designed to protect resource values, uses, maintenance of soil productivity, stability, and water quality.

    - Monitor ground conditions before and during construction activities to avoid wet ground conditions that can negatively affect soil condition and water quality.

    - Grazing at a level that will maintain enough cover to protect the soils and maintain or improve the quantity and quality of desired vegetation. This practice will be applied through the utilization guidelines.

- Fencing to improve cattle management, control access, prevent soil loss, and improve water quality. Fencing was not designed to prevent soil loss and improve water quality.

2. **Noxious Weeds:** State-listed noxious weeds located on this allotment will be treated as necessary. The permittee and Forest Service will coordinate the weed inventory and treatment with responsibilities identified through the AOI. Noxious weed monitoring is carried out at the same time allotment inspections are conducted. As noxious weed populations are found they are mapped, monitored and, in some areas, manually removed. Other treatment methods will follow guidelines established in the Coconino National Forest Plan.

3. **Threatened and Endangered Species:** There is no effect to species or their habitat. This determination is made based on the fact that the project will not alter or impact habitat conditions, nor will it create a disturbance to threatened and endangered species of concern on the District's Threatened, Endangered, and Sensitive Species List.

4. **Sensitive Plant Species:** Sensitive plant surveys will be completed before constructing fences. If sensitive plant species are located, coordination with a wildlife biologist or botanist will occur to mitigate impacts as needed (i.e. flagging specific plants and adjusting the location of the improvement).

5. **Cultural Resources:** Activities associated with allotment improvements will be managed to avoid cultural resource sites and ensure no effect to cultural resources. Before initiating any activities as part of this project, a district archeologist will be notified to ensure the proposed activities have cultural resource clearance and project personnel are aware of the conditions of the Deep Lake Allotment Management Plan Cultural Resource Clearance Report [PRD 24]. Management practices that tend to concentrate cattle, such as placement of salt, supplements, construction of waters or corrals, etc., will be located away from cultural resources. Ground disturbing activities, such as the construction of improvements (e.g., pipelines, stock tanks, cattle guards, etc.), will require separate archeological survey and clearance prior to implementation.

   The district will periodically monitor known archeological sites to ensure they have been avoided, and such inspections will be reported in writing to the forest archeologist. Should any additional prehistoric or historic archeological sites be encountered during the course of this project, they are to be avoided and immediately reported to a district or zone archeologist. If any of these new discoveries are rock shelters, they will be closely monitored and if cattle are using these sites for shelter and impacting the fragile nature of the site, the shelter should be excluded from future grazing. Should the tribes identify any plants in the area having traditional importance, the district will encourage and protect the natural regeneration of such plants.

Goals and Objectives of Management

Background

The Deep Lake cattle grazing allotment is located approximately 9 miles southeast of Flagstaff, Arizona. This allotment lies in the eastern portion of the Mormon Lake Ranger District of the Coconino National Forest.

The Deep Lake Allotment consists of about 10,994 acres, which are in one main pasture. The Deep Lake Allotment runs along the northeastern edge of Anderson Mesa and is located within all or portions of T20N, R9E Sections 10-15, 21-25, and 32-36, and T19N, R9E Sections 1-5.

Primary vegetation on the Deep Lake Allotment consists of pinyon-juniper woodland that extends above and below the Anderson Mesa rim. A band of ponderosa pine is found along the Anderson Mesa rim and Mormon Canyon and isolated meadows exist within the northern portion of the allotment. Deep Lake is the only semipermanent wetland within the allotment and Horse Tank was recently reclassified as a seasonal wetland. Adjacent to, but outside of the Deep Lake Allotment, Horse Lake is already fenced to permanently exclude cattle from grazing.

The permitted use is based on condition and trend studies completed in 1999 and revisited in 2006, actual use data for the allotment for the past 17 years, and the effects of this use on resource conditions. It also reflects the estimated annual forage production available for cattle on the allotment considering climate, duration, timing, frequency, and intensity of grazing as well as proper livestock management.

Purpose and Need

The purpose of this analysis was to determine whether or not to re-authorize cattle grazing and set grazing levels within the carrying capacity for the Deep Lake Allotment. There is a need to continue maintaining and improving rangeland conditions and to maintain and protect semipermanent wetlands. New fencing is also needed around stock tanks for better distribution of cattle.

There is a need to maintain and/or improve rangeland conditions, and to maintain and protect seasonal and semipermanent wetlands which includes wetlands with emergent vegetation on the allotment. There is also a need to maintain the Forest Service's and permittee's access to current water claims within the allotment.

Where consistent with other multiple-use goals and objectives there is Congressional intent to allow grazing on suitable lands (Multiple-Use Sustained-Yield Act of 1960, Forest and Rangeland Renewable Resources Planning Act of 1974, Federal Land Policy and Management Act of 1976, and National Forest Management Act of 1976).

This allotment contains lands identified as suitable for domestic livestock grazing in the Coconino National Forest Plan. Continued domestic livestock grazing is consistent with the goals, objectives, standards, and guidelines of the Forest Plan.

It is Forest Service policy to make forage available to qualified livestock operators from lands suitable for grazing consistent with forest plans (FSM 2203.1).

It is also Forest Service policy to continue contributions to the economic and social well being of people by providing opportunities for economic diversity and by promoting stability for communities that depend on range resources for their livelihood (FSM 2202.1).

By regulation, forage-producing lands will be managed for livestock grazing where consistent with forest plans (36 CFR 222.2 (c)).

A 10-year period for this permit is allowed by law (FLPMA Sec. 402 (a) & (b) (3)). A permit may be issued for a shorter term under several circumstances, including when the best interest of sound land management is served.

Management Strategy

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- The current utilization guideline will continue to allow up to 35 percent use by cattle and/or wildlife during the cattle grazing season of May through October. This includes a "moderate" seasonal utilization guideline which is measured before the end of the growing season and is used in determining when cattle need to move. Cattle will move from one area to another when seasonal utilization approaches a "moderate" level, approximately 21-50 percent. Areas will not be grazed again during the grazing season. Once this use standard is met across the allotment, cattle will be moved off the allotment.

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- Adaptive management is designed to provide sufficient flexibility to adapt management to changing circumstances. If monitoring indicates that desired conditions are not being achieved, management will be modified in cooperation with the permittee. Changes may include administrative decisions such as the specific number of livestock authorized annually, specific dates of grazing, or class of animal, but such change will not exceed the limits for timing, intensity, duration, and frequency defined in this Management Plan.

Additional Management Items

Annual Operating Instructions: Annual operating instructions (AOI) make adjustments to cattle numbers and time and duration of pasture use based on current climatic and range conditions. The AOIs are established at the beginning of each grazing season (spring) and published on the Coconino National Forest Web site (www.fs.fed.us/r3/coconino/publications). Annual operating instructions may be adjusted throughout the grazing season as conditions change.

The AOIs are the means by which adjustments of cattle numbers, and changes in the season of use are made in response to monitoring information such as frequency, canopy cover, Parker Three-Step plots and allotment inspections. Cattle numbers may go up or down annually but will not exceed the maximum number permitted. The annual minimum cattle number is zero.

Cattle Guards: For this Allotment Management Plan there is the need to keep cattle contained to the allotment and prevent forest users from leaving gates open. Where roads are open for public use, cattle guards will be maintained. Where roads are identified for closure, in past and future road decisions, no cattle guards are necessary. If gates are left open more often, new cattle guards may need to be installed.

Cattle guard maintenance is shared between the Forest Service and the permittee for level 3 roads (main surfaced roads). Cattle guard maintenance on level 2 roads (smaller, secondary roads) is the responsibility of the permittee.

Structural Improvements: 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.

All future structural improvement projects, including the waterlots and wetland fences, will be coordinated with cultural, wildlife, and recreation personnel before implemention.

Utilization: Long-term condition and trend monitoring is the primary standard for monitoring of this cattle grazing management system. Utilization is used as a tool to understand and achieve the goals of long-term management. Utilization guidelines are intended to indicate a level of use or desired stocking rates to be achieved over a period of years.

The definition of utilization and seasonal utilization come from standard protocols established by the Society of Rangeland Management, and the new guidelines established by the Region 3 Regional Forester.

Utilization is the proportion or degree of current year's forage production that is consumed or destroyed by animals (including insects). It is a comparison of the amount of herbage left compared with the amount of herbage produced during the year. Utilization is measured at the end of the growing season when the total annual production can be accounted for and the effects of grazing in the whole management unit can be assessed. Utilization guidelines are not intended as inflexible limits.

Utilization measurements will be sampled to reflect grazing effects within the allotment. Utilization measurements can indicate the need for management changes prior to this need being identified through long-term monitoring. Utilization data will not be used alone, but will be used along with climate and condition and trend data, to set stocking levels and rotations within the pasture for future years. One key area will be established within the allotment and read yearly (when possible) to monitor vegetation on the allotment. Monitoring at this site will likely include precipitation, ground cover, plant canopy cover, plant frequency, utilization, and production data.

Cattle will move from one area to another when seasonal utilization approaches a "moderate" level. Moderate seasonal utilization is an approximate value because it takes into account any additional growth which might occur later that year and considers season of use, wildlife use, weather conditions, availability of forage, and water in on the allotment. This moderate seasonal utilization level leaves residual cover for wildlife and soils and provides for long-term health of the grazed plants.

If monitoring shows utilization rates exceed the utilization guideline on the allotment in a given year, the grazing schedule and/or cattle numbers will be adjusted the following year so the utilization guidelines are not exceeded again. If utilization is exceeded after these adjustments are made, then the grazing management system will be changed to ensure this does not happen in the future.

Fencing: All new fencing will have a smooth bottom wire at an 18-inch height for wildlife passage. Where possible, fences will be located within tree lines to limit impacts to visual quality. Elk jumps and goat bars (PVC pipes placed on the bottom two strands and on the top strand at a crossing point) will be constructed along new fences or along existing fences on game trails and known migration corridors as volunteers and funding are available. As fence

inventories are completed, those fence segments that restrict wildlife movement will be modified as funding becomes available.

Stock tank maintenance:

- maintenance will be limited to the original boundary of the stock tank;
- maintenance will be limited to removal of sediment that has accumulated in the stock tank and maintenance of the tank berm and spillway;
- equipment that will be used includes but is not limited to a dozer, backhoe, or front end loader;
- maintenance frequency will range from no maintenance to whenever needed, depending on the amount of sediment flowing into the stock tank;
- maintenance will be done when the stock tanks are either dry or the water level is low enough so that the equipment will not get stuck in the mud;
- any requirements or timing restrictions related to water quality, wildlife, archaeology, or Forest Plan standards and guidelines will be followed; and
- Horse Tank and Deep Lake stock tanks will not be maintained for the next 10 years.

Salting:

No salting will be permitted in valley swales, pinyon-juniper pushes, wetlands, or within one-quarter mile from water.

Monitoring

Monitoring includes the following activities: permit compliance, allotment inspections, range readiness, forage production, rangeland utilization, condition and trend, soil condition, noxious weeds, and threatened and endangered species. Monitoring frequency varies by each activity and may be accomplished by either the permittee and/or Forest Service personnel.

Permit Compliance: Throughout each grazing season Forest Service personnel will monitor to determine accomplishments of the permit terms and conditions, the AMP, and the AOI.

Allotment Inspections: Allotment inspections are a written summary completed 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 a monitoring summary.

Range Readiness: Each spring, Forest Service personnel and/or the grazing permittee will assess range readiness prior to cattle coming on the allotment to determine if vegetative conditions are ready for cattle grazing. 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 this allotment will be done every 9 to 13 years. Methods used for these surveys will use the best available methods at that time. These values will be used as tools to manage this allotment, but will not be the sole measurement to establish carrying capacity. The most recent forage production surveys were done as part of this analysis in 1999. The next survey is scheduled to occur after 2009.

Rangeland Utilization: Long-term condition and trend monitoring is the primary standard for monitoring of this cattle grazing management system. Utilization is used as a tool to understand and achieve the goals of long-term management. Utilization guidelines are intended to indicate a level of use or desired stocking rates to be achieved over a period of years.

Utilization is the proportion or degree of current year's forage production that is consumed or destroyed by animals (including insects). It is a comparison of the amount of herbage left compared with the amount of herbage produced during the year. Utilization is measured at the end of the growing season when the total annual production can be accounted for and the effects of grazing in the whole management unit can be assessed. Utilization guidelines are intended to indicate a level of use or desired stocking rate to be achieved over a period of years.

Utilization measurements will be sampled to reflect grazing effects within the allotment. Utilization measurements can indicate the need for management changes prior to this need being identified through long-term monitoring. 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 will not be used alone, but will

be used along with climate and condition/trend data, to set stocking levels and within pasture rotations for future years. One key area will be established within the allotment and read yearly (when possible) to monitor yearly variations of the allotment. Monitoring at this site will likely include precipitation, ground cover, plant canopy cover, plant frequency, utilization and production.

Condition and Trend: Watershed and vegetative condition and trend monitoring will help determine the effectiveness of the allotment management plan, and long-term range and watershed trends.

Parker Three-Step and paced transect monitoring points were established throughout this allotment in the 1950-60s. These transects are one of best historic records of range condition and trend. The photo points and vegetative ground cover data show how the site has changed over time. Canopy cover and frequency plots were placed with the Parker Three-Step transects in 1999 to add to this historic data.

Ocular plant canopy cover 0.10-acre plots were used to compare existing conditions with potential and desired vegetative community conditions. Over time. these plots will show how canopy cover changes. Canopy cover will provide an indication of how plants are growing, assuming that if they are becoming larger and occupying more space, then they are doing well and can be a relative gauge of vigor.

Frequency and ground cover data were collected using the widely accepted plant frequency method (University of Arizona, Extension Report 9043, 1997). These plots will monitor trends in plant species abundance, plant species distribution, and ground cover. This will provide information on plant composition and additional information on regeneration.

These transects will be read approximately every 10 years by Forest Service personnel. These plots will help determine the effectiveness of current management.

Precipitation: Precipitation is currently recorded at the Flagstaff National Weather Service Office at Bellemont. Precipitation data may be recorded within or near the allotment for more localized information. Precipitation data may be recorded throughout the year and summarized in the annual inspection. This data assists managers with forage utilization and production data collection.

Soil and Riparian 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 evaluate effects of management activities on soil and water resources; and (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. The grazing system incorporates best management practices (BMPs) and constitutes compliance with Arizona State and Federal Water Quality Standards. Arizona Department of Water Quality (ADEQ) will continue to monitor water quality in the area.

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 described 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 and climate in general, will be considered when evaluating monitoring results.

Noxious Weeds: State-listed noxious weeds located on this allotment will be treated as necessary. The permittee and Forest Service will coordinate the weed inventory and treatment with responsibilities identified through the AOI. Noxious weed monitoring is carried out at the same time allotment inspections are conducted. As noxious weed populations are found they are mapped, monitored and in some areas, manually removed. Other treatment methods will follow guidelines established in the Forest Plan.

Threatened and Endangered Species: Threatened and endangered species are monitored in compliance and consultation with the USFWS. Vegetation monitoring points (key areas) have been established on the allotment and are monitored according to consultation requirements. These key areas would normally be one-quarter to 1 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. Within key forage monitoring areas, select appropriate key species to monitor average allowable use (USDA 1987, p. 66-1).

One key area plot is already established on the Deep Lake Allotment and monitored annually:

- Management Area: Meadow
- Pasture: Deep
- Location: Meadow west of 82 road
- Key Species: Blue grama, wheat grass

Grazing Schedule

The Deep Lake Allotment is primarily used as a one pasture grazing system. One cross fence located on the northeast corner of the allotment is used early in the season when the cattle first arrive and at the end of the season for gathering. The other interior fence is located on the open grassland north of the base property. This fence will be used as necessary throughout the season to give rest to this grassland community.

Horse Tank Lake and Deep Lake cannot be used before July 15th, until these wetlands are fenced. The permittee must keep the cattle below the Anderson Mesa rim until July 15th through herding. Once these wetland exclosures are built, then this management requirement will not be necessary.

The permittee is required to maintain the utilization of 35% throughout the allotment. As an area reaches the "moderate" seasonal utilization level, the permittee will move the cattle to a new area. In addition, the new waterlots will help with this effort, by controlling where the cattle can access water and thus were they will be foraging.