

Mills Canyon Management Area

The Mills Canyon Management Area is located in Mora and Harding Counties, NM and is part of the Kiowa National Grassland and is a unique subunit of the Kiowa and Rita Blanca Management Area (see Appendix A). The following plan components (desired conditions, objectives, guidelines, and standards), management approaches and referenced management direction apply only to the social and economic goods and services and ecological resources of the Mills Canyon Management Area. Because this management area is an overlay to the Kiowa and Rita Blanca Management Area, the direction, given for the Kiowa and Rita Blanca Management Area and the Grasslands-wide direction of part two apply as well.

The reader is reminded that:

where there is no desired condition given for a social or economic good or service or ecological resource related to this management area, refer to the Grasslands-wide desired condition for the same topic in part two or to the Kiowa and Rita Blanca Management Area desired condition for the same topic in part three;

where there are no explicitly stated, unique or additive objectives, management approaches, guidelines, standards, or other sources of information given, then none exist for this management area beyond those at the Grasslands-wide scale presented in part two or at the Kiowa and Rita Blanca Management Area scale presented in part three.

Integrated Social and Economic Direction

Background and Description

The Mills Canyon Management Area is located in the western portion of the Kiowa National Grasslands. Its eastern and western boundaries are defined by the rim of the canyon walls, and the northern and southern extents are defined by NFS property boundaries. The management area is being considered, as part of plan revision, for its wilderness designation potential, but no recommendation for designation has been made. However, the Forest Service intends to maintain the unroaded, semi-primitive character of the management area, and to preserve its outstanding recreational and natural features (See Appendix A).

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Figure 30: Mills Canyon Management Area

Caption: The Mills Canyon Management Area is remarkable for its dramatic topography. The area has been a center of prehistoric and historic activities.

Desired Condition

The unique characteristics of Mills Canyon are apparent. Views of the 800 foot canyon to the valley bottom reveal red cliffs of sandstone and shale that forms the Canyon walls (See also Ecological Desired Conditions for the Mills Canyon Management Area). The Canadian River which flows at the bottom, with ribbons of willows and pockets of cottonwoods growing along the banks is a central element of the valued landscape. Along the rim there are deciduous trees or shrubs, while the canyon features cottonwoods and other trees and shrubs that provide splashes of fall color. The contribution of these scenic features allows the canyon to be predominantly a natural appearing landscape. Vegetation is dominated by native species and natural systems are intact and functioning.

The ruins of the Mills Orchard and Ranch operation add character to the canyon near the campground. The remains of the beautifully crafted stone structures give a sense of connection to the past. Remnant fruit trees and Osage orange trees are reminders of the varied history of the Canyon.

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Figure 31: Remnant fruit trees

Caption: The line of fruit trees and Osage orange trees draw a canyon viewer's attention to the ruins of buildings and to the stark contrast among meandering riparian vegetation, rolling terrain trees and shrubs and the grid of the early settlers plantings.

A variety of non-motorized recreation opportunities exist in a natural or natural-appearing setting that offers opportunities for solitude. Concentration of users outside of developed recreation facilities is low, but there is evidence of use occurring. Dispersed camping occurs in areas appropriate for that use. Dispersed recreational areas offer unique hunting opportunities.

Improvements such as trailheads, trails, signs, bridges, fences, primitive shelters, or water developments, are present. Existing two-track roads and old roads may be evident but will diminish over time or may be designated trails. The number of structures and facilities to support management activities is limited.

Trails, in and around Mills Canyon, provide both challenging and easy non-motorized routes. The main roads in the Canyon provide vehicle access to trailheads. Non-motorized trail access from the top of the Canyon to the bottom is provided. Trails accommodate hiking, horseback riding, and other non-motorized uses, as appropriate.

A natural landscape with unobtrusive structural developments is maintained. Livestock grazing and recreation activities have minimal conflict. Vegetation management activity conforms to valued landscape characteristics of the Eligible Scenic River.

Objectives

Post signs and construct barriers to prevent camping immediately outside of all developed sites within 10 years of plan approval.

Successfully rehabilitate areas of past disturbance within 200 feet of all developed recreation sites within 10 years of plan approval.

Construct two non-motorized trails in the Mills Canyon Management Area within 15 years of plan approval.

Perform maintenance on the of Mills Canyon Orchard and Ranch site every three to five years to the conditions established by the 2005 rehabilitation. Rehabilitate all user-created routes and closed roads that are causing resource concerns within 15 years after a Travel Management decision is signed for the Management Area.

Vegetation in Canyon Lowlands, Woodland Piñon-Juniper on Canyon Steep Slopes, Cottonwood-Willow Riparian and Canadian River

Background and Description

The Mills Canyon Management Area is located in northeast New Mexico on the Middle Canadian River above the Conchas reservoir and is defined geographically by the Canadian River canyon gorge with

elevations ranging from 6,100 feet at the river to 6,800 feet at the canyon rim. The variable landscape gives rise to diversity in species composition and structure across the landscape (See Appendix A).

The vegetation in the canyon area from rim to rim is made up of variations of the piñon-juniper and cottonwood willow riparian PNVT's described in the preceding Kiowa and Rita Blanca Management Area section. The species composition and structure variations are associated with the following topographical positions:

- Canyon lowlands,
- Woodland piñon-juniper on canyon steep slopes,
- Cottonwood/willow riparian and Canadian River.

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Figure 32: Mills Canyon and Canadian River

Caption: The valley, river and canyon walls in this photo of Mills Canyon create a backdrop for the diverse vegetation growing in the riparian areas, floodplain terraces and the gently rolling valley floor areas.

Canyon Lowlands

Background and Description

The canyon lowlands of the Canadian River valley include the gently sloping floodplains found between the riparian area of the Canadian River and side drainages. These floodplains are characterized by gentle gradient terraces of less than 15% slope and transition into the nearly vertical side slopes that form the walls of the river canyon and the canyon stringer drainages that flow into the main channel of the river system. Much of the river bottom was formed by alluvial deposits and sloughing upper terraces. There are three distinct floodplains dependent upon and formed by the frequency of flooding events. They range from areas of historic (long-term) floods where vegetation can exhibit successional patterns, areas of 100 to 500 year flooding, and areas of two to five year flooding where the vegetation is comprised mostly of annuals and other riparian disturbance dependent species. Flooding frequency determines vegetation composition and successional patterns. The upper floodplain is a secondary successional pattern exhibited by a woodland community of oneseed juniper, piñon pine, wavy leaf oak, cholla, and sumac with an herbaceous understory of silver bluestem, sand dropseed, vine mesquite, and blue grama. The woodland community advances onto the secondary floodplain near the water's edge, narrowing the zone of water influence and indicating a disruption in historic extent and frequency of flood patterns.

Desired Condition

The composition, structure, and function of vegetation promote resilience of the system to the frequency, extent and severity of flood events. Vegetation is represented in a diverse composition and age class distribution. Species present within the two to five year floodplain indicate maintenance of riparian soil moisture characteristics. Vegetation within the secondary and tertiary floodplains is adequate to protect soils and dissipate energy during high flows. Early successional stage occurs post-flood and covers 10-20% of the floodplain. Mid to Late development stages average 50-80% of the floodplain in relative abundance with a mixture of upland and riparian dependent species present.

Objectives

Use prescribed fire at least once within 15 years of plan approval to rejuvenate browse component on the canyon lowlands.

Woodland Piñon Juniper on Canyon Steep Slopes, Cliffs and Rock Outcrops

Background and Description

Canyon side slopes are directly associated with drainages and range from steep to very steep with gradients greater than 20%. The dominant vegetation on canyon slopes varies depending on aspect, with piñon pine, juniper and gambel oak being the principal tree species. The area is wetter than upland areas and northerly slopes support dense mixed and occasionally pure stands of juniper, Ponderosa pine, mountain mahogany and oak. Slopes with more southerly aspects support relatively dense stands of piñon pine and juniper with mixed oak primarily comprised of wavyleaf oak. The vegetation on cooler, moister side drainages and the edge of the canyon rim is generally comprised of ponderosa pine stringers. Fire influenced areas are often characterized by dense stands of Gambel and wavyleaf oak thickets.

The Rocky Mountain dagger (a snail), is associated with the woodland canyon side slopes, cliffs and rock outcrops in talus areas where the rocky fragmented surface and cavities provide foraging and escape or cover protection. Horrid herrickia (a plant), grows where cliff talus interfaces with upper flood plain terraces adjacent to the Canadian River (See Appendix A).

[Click here to view photo](#)

Figure 33: Ponderosa Pine on steep canyon slopes of Mills Canyon

Caption: Slopes with more southerly aspects support Ponderosa pine and relatively dense stands of piñon pine and juniper with wavyleaf oak and Gambel oak understories.

Desired Condition

The side slopes support dense, mixed and occasionally pure stands of juniper, Ponderosa pine, mountain mahogany and oak. Slopes with more southerly aspects support relatively dense stands of piñon pine and juniper with mixed oak primarily comprised of wavyleaf oak. Vegetative cover is present to maintain erosion at natural rates. Fire regimes are within 1 to 35 years with a range of variation and intensity. Fire influenced areas are characterized by dense stands of Gambel and wavyleaf oak thickets and vegetative cover is present to maintain erosion at natural rates. The risk of losing key ecosystem components (species composition, structure and pattern) due to severe wildfire is low.

Woodland canyon side slopes provide key ecosystem components such as older age class Ponderosa pine to provide nesting habitat for raptors such as the zone-tailed hawk and roost or nursery habitat for bats. Cliffs support nesting raptors. Populations of Rocky Mountain dagger are sustainable in suitable habitat. Horrid herrickia occurs on dry, south-facing slopes that are shaded and north-facing slopes that include patches of disturbed sandy soils.

Objectives

Use prescribed fire at least once over the life of the plan, to rejuvenate browse component on the canyon side-slopes.

Cottonwood-Willow Riparian and Canadian River

Background and Description

Along the canyon bottom, within the river floodplain, vegetation is dominated by riparian species, including willow and cottonwood. The cottonwood willow riparian communities are located within stream channels and include the associated floodplains and terraces. Riparian vegetation is common with

sandy alluvial soil conditions. The early successional stage is represented on about 16% of this PNVT and is typically shrub-seedling dominated, but grasses may co-dominate. The mid and late successional stage covers about 84% of this PNVT. The mid vegetation composition includes tall shrubs and small trees such as willows and cottonwoods. Late successional stage represents the mature, large cottonwood and willow riparian woodlands. Much of the native riparian vegetation has been replaced by salt cedar. Current management activities are targeting non-native, invasive species in riparian areas. These activities are encouraging establishment of needed mid-successional conditions. In the Mills Canyon Management area of the Canadian River, non-native, invasive salt cedar has degraded the water and soil by the increased salinity.

Cottonwood-willow riparian trees support nesting and foraging birds such as the Red-headed Woodpecker in early/mid and late successional stages and Bald Eagle in the late successional stage during winter migration. Wildlife that utilizes the adjacent riparian habitat and other riparian wet mesic areas are invertebrates such as Conchas crayfish, ambersnail, and reptiles such as arid land ribbon snake.

Desired Condition

Fremont cottonwood dominates the tree layer with peachleaf willow present in the sub-canopy. Riparian dependant species includes narrowleaf cattail, common button bush, thinleaf or marsh alder, rocky mountain elderberry and a variety of sedge and rush species. The primary shrub species are Sandbar willow and riverbank grape. Native warm season grasses, including blue grama, sideoats grama, sand dropseed, vine mesquite, Virginia wild rye, and switchgrass are prominent in the riparian ecosystem. Western wheatgrass is an important cool season species. Drier sites along or within ephemeral systems and upper terraces have New Mexico locust, choke cherry, hackberry, skunkbush sumac, and Apache plume.

For both herbaceous and woody riparian areas, stream characteristics including vegetation, geomorphology, and hydrology are sufficient to:

- Dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality,
- Filter sediment, capture bedload, and aid floodplain development,
- Allow flood-water retention and ground water recharge,
- Develop root masses that stabilize streambanks against cutting action.

Populations of native woody species, particularly the long-term presence of mature cottonwood stands and areas with regenerating cottonwood and willow saplings, provide habitat for wildlife species, such as, Bald Eagle, and Red-headed Woodpecker. A diverse mix of native grasses and forbs adapted to abrupt fluctuations in moisture regimes occurs in the herbaceous portion of riparian areas and provide habitat for arid land ribbonsnake and ambersnail. The meander scars and depressions in the riparian areas that retain water part or all year provide habitat for amphibian species such as the plains leopard frog.

Guidelines

Remnant fruit trees in Mills Canyon should be retained during all management activities.

Conchas crayfish habitat of sandy substrate and shallow shoreline should be maintained.