NEW MEXICO PARTNERS FOR FISH AND WILDLIFE PROGRAM

The goal of the Partners for Fish and Wildlife program is to improve fish and wildlife habitat on private, tribal, and State Land Office lands in New Mexico

Red Canyon Reserve Habitat Restoration

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*A key goal of the **Red Canyon Reserve Habitat Restoration** project is to improve breeding and winter habitat for a diverse group of State listed and sensitive wild life species by enhancing riparian wetlands habitats and increasing the distribution and availability of permanent (hereby seasonal) and fully assessable water sources. While grassland and riparian habitats are improving presently, these enhancements will create a habitat corridor link and refuge for species to and from adjacent public and private lands.*

The Red Canyon Reserve (RCR) is 320 acres and is owned and operated by the Quivira Coalition, a Section 501(c)(3) organization, since 2003. The reserve was acquired from the Estate of Mike Belshaw whose will contained a requirement that the land be managed for the benefit of wildlife and for educational purposes. Red Canyon Reserve is located in Socorro County. Off of I -25 take Exit 115 (approx. 32 mile south of Socorro). Follow New Mexico Road 107 west on for 12.85 miles toward Magdalena. At this point, + or – you will be at or approaching a cattle guard. Before crossing the cattle guard turn left (south) and proceed south on the road along the fence line. Go + or – 2 miles south on this road and you will be at the Red Canyon Reserve campsite.

RCR straddles the boundaries of two ecoregional zones. To the east is the Chihuahuan Desert Grasslands and to the west is the Madrean Lower Montane Woodland, on the eastern foothills of the San Mateo Mountains. The Reserve encompasses the transition from Desert grasslands to Montane woodlands savanna, and encompasses about 5/8 of lowland riparian area within canyon walled in cliffs and rock out croppings. Recently channel aggradation and the presence of bedrock within the riparian zone has rejuvenated a small, free flowing perennial spring within the confines of the canyon. The property is bounded by the Cibola National Forest on the south, west and north sides and by two (2) private land owners on the east side.

Hundreds of volunteer hours and some paid contract hours have been invested in the restoration and stabilization of the landform at RCR. The perimeter fence has been totally repaired and or replaced to prevent trespass livestock grazing. Livestock have been off the Reserve for the past three years. Five thousand feet of road have been closed, decommissioned, drained and reseeded. The exiting road system has been properly drained and the water harvested to increase forage production. Numerous rock erosion control structures have been installed to control erosion and promote new vegetation growth. A vegetation monitoring plan has been established and the data is collected annually.

RCR is equipped with a good well, solar pump and storage tanks. There are currently two (2) functional water troughs on the property that are designed to service livestock. These troughs are situated fairly close together, serve only the north side of the property, and have limited use to small mammals, birds and bats.

Project Implementation Plan Includes:

1. Installation of a 1,000 gallon storage tank at the well head that will service the drinker system.
2. Installation of about 5,300 feet pipe (laid along the surface of the ground).
3. Installation of four (4) larger ground level wildlife drinkers located at different sites on the property.
4. Installation of a drinker fence system that will only be set in place when livestock are used to do disturbance grazing on the Reserve. Four (4) steel "T" posts will be installed at each drinker and four (4) eight foot livestock panels will be stored in the proximity of the drinkers so they can be installed on a temporary, as needed basis.
5. The wildlife drinker system is designed to be low maintenance and to withstand the test of time, by the purchasing of good quality drinkers with a proven design and good quality materials such a valves and piping. The piping will be

laid on top of the ground for easy access to repairs. Installation over sight of volunteers will be done by a licensed New Mexico general contract to assure quality control. The valve control system is designed so that if there is a situation with one drinker the other three will remain in service.

6. The system will be installed by volunteer hand labor. A backhoe will assist in the excavation of the drinker location, minor trenching needs and the importing of ¾ inch bedding gravel.

7. Wetlands/Riparian habitat enhancement in Red Canyon shall be accomplished by the installation of 10 to 12 Rock Arch Dams. The dams shall be constructed at opportunistic locations along the channel course in Red Canyon. These structures are designed to create a grade control and a scour pool in the channel. The scour pool will increase the time that surface water is available for wildlife within the canyon corridor. The grade control aspect of these structures will help to stabilize the channel and will increase the amount of alluvial storage in the stream bank, thus helping to increase the time duration that water will be available in the scour pools and increase the available water supply for riparian vegetation. These structures shall be constructed out of locally harvested rock and the labor will be provided by volunteers.

7A. The overgrowth of One Seed Juniper in the understory of the Cottonwoods Bosque shall be thinned to protect the Cottonwoods from fire and to increase the water supply to the riparian vegetation. Some of the thinning materials will be incorporated into other restoration structures and fencing materials. This work shall be accomplished by the use of volunteer labor.

8. Due to pasted land management practices there are numerous incised gullies in the valley bottoms at RCR. These valley bottoms were once intact, grassed in swells, sheet flow systems with no incised channel. The gully systems have now channelized the sheet flow and the incise gullies have depleted the alluvial water storage in the valley bottoms, thus reducing the amount and vigor of the grass land vegetation. To restore theses valley bottoms and grassland habitat areas numerous rock structures shall be installed in the existing gully systems. These structures are design to stop the gully down cutting (incision) and spread the water back onto the valley bottom to restore the sheet flow systems. This will spread the water over more surface area, recharge alluvial storage (water retention) and increase the amount of grassland vegetation. The rock structure that shall be used and installed on a site specific basis are, One Rock Dams for grade control, Zuni Bowls for head cut control, Rock Rundowns for rill control, Media Lunas to spread water and create sheet flow. All rock structures shall be seed with native grass seed. The native seed mix will incorporated present native grass species and also missing grass species that have been lost at this location due to past grazing practices.

9. Wildlife friendly escape ramps shall be installed in the existing livestock drinkers.

Endangered and Threatened Species:

The New Mexico Natural Heritage data base for endemic species and ranks of endangerment as well as the New Mexico Game and Fish Bison data base were queried for confirmation of habitat or species occurrence within the project area. No federally listed species are known to inhabit the project site. The Socorro springsnail (*Pyrgulopsis meomexicana),* federally listed as Endangered, has been recorded in Socorro County in similar habitats as the spring on the RCR in Red Canyon. It is doubtful the aquatic habitat has been surveyed for the presence of this species. Enhancing wetland and aquatic habitat with proposed induced meandering techniques is expected to stabilize and improve perennial flow, and woody debris accumulation within the aquatic environment. The (Desert) Bighorn Sheep, *Ovis canadensis Mexicana.* is listed in New Mexico as threatened. It has been observed in similar habitat in the same county and general location as the Reserve. The habitat improvement plan will provide increased watering opportunities for this species in its travel corridor through the area**.**

Improving perennial water availability in both uplands and in the riparian corridor of Red Canyon is expected to benefit several neotropical bird species, both for potential nesting habitat as well as over wintering habitats. Habitat will be enhanced with water source access and expanded aquatic habitat for several state listed species and species at risk. A recent field visit by a certified wildlife biologist confirmed a well used bat roosting site within Red Canyon on the RCR, within ¼ mile of the wetland location and within ½ mile of proposed upland water sources that will be bat friendly. Several species of bats presently, either State listed or considered imperiled may use this roost site. Several neotropical bird species which have been recorded as over wintering or breeding within Socorro County may use either grassland or riparian corridor habitat on the RCR. The riparian corridor within Red Canyon with cliff habitat provides a unique habitat for several neotropical migrant species, and could actually be nesting habitat for the Bell's vireo. Non-huntable populations of Desert Bighorn may actually visit the project site

during transient movements to and from known occupied habitat. Following is a list of potential species recorded in Socorro County in recent years that may use the RCR for important habitat features.

RCR Habitat Improvement Practice(s):

RCR is in its third year of rest from livestock grazing. Livestock grazing is part of the reserve's management plan, but will only be used as a tool, i.e., high numbers for a short duration to create beneficial disturbance. Future livestock management will occur after continued recovery of riparian and uplands is complete, and will be targeted for dormant season use to create site specific disturbance to deposit litter and incorporate organic material.

One Seed Juniper is present on the Reserve. The ranch management plan calls for limiting the spread of these trees into the grasslands. Some of these trees have already been cut and used in erosion control structures. Our plan within this grant includes the thinning of One Seed Juniper within the riparian zone of Red Canyon. Continued monitoring of the riparian corridor is ongoing to ensure that Salt Cedar does not become established within this unique riparian habitat. (e.g., remove salt cedar, thin juniper, remove bullfrogs, herbicide or hand removal of noxious weeds)

A botanical survey of the ranch has been completed and is available upon request. Where feasible, willow cuttings will be planted within the wetland or flowing spring location, adjacent to extended debris jams and at Rock Arch Dam locations to enhance stream channel stability.

The Reserve is in its third year of rest from livestock grazing. Both upland and riparian vegetation is responding well and is on an upward trend. Improvement in channel stability in the 3,300 foot riparian corridor in Red Canyon recently resulted in substantial aggradation of bed load cobble and woody debris that has resulted in perennial spring flow within the walled-in portion of the canyon. The road system has been reduced by eliminating over 5,000 feet old of roads to only two (2) necessary travel routes. The existing roads, as well as the closed roads, have all been properly drained and the water is being harvested for increased upland grassland production. Forty-five (45) rock erosion control structures have been installed to spread sheet flow, arrest headcuts caused by previous road construction, maintenance and grazing practices. Structures and altered maintenance practices have promoted a significant amount of vegetation recovery within the ephemeral drainage.

Harvesting of rock from localized sources for rock erosion structures has been completely rehabilitated using both native seed and mulching with limb cuttings for initial litter cover with excellent success. Rock harvesting areas have stabilized and are recovering well.

The Reserve provides and excellent setting for on the ground education workshops in ecosystem management, vegetation identification, erosion control and road drainage practices. There are many of these practices that have been put in place on the Reserve and they are excellent examples of conservation/habitat management practices that are functioning well. The facilities at the RCR can support a group of 30 volunteers. There is a covered ramada with kitchen, running water, outhouse and hot showers**.**