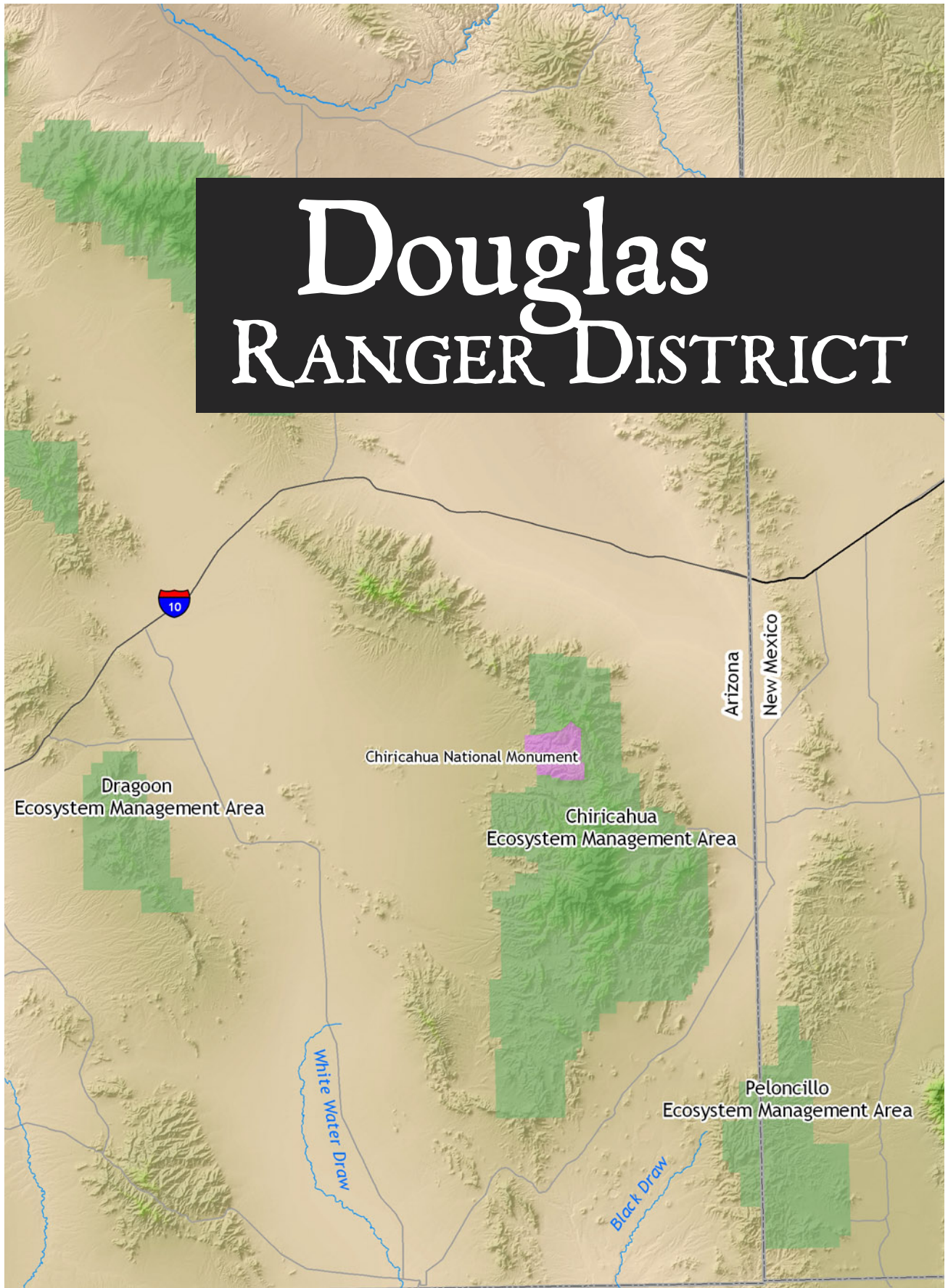


Douglas RANGER DISTRICT





CHAPTER 4 Peloncillo Ecosystem Management Area

The Peloncillo Ecosystem Management Area (EMA) contains some of the wildest country in the Coronado National Forest. Its 87,986 acres straddle the Arizona-New Mexico border along the spine of the Peloncillo Mountains. These mountains and surrounding desert grasslands have received national and international recognition for their outstanding biological diversity. Much of the area's ecological integrity remains intact and the area is rich in prehistory and history.

The Peloncillo Mountain Range stretches approximately 70 miles from the U.S.-Mexico border north to the Gila River. The area managed by the Forest Service is situated at the southern end of the range near the U.S.-Mexico border. Elevations range from 2,500 feet to 6,300 feet. The vegetation in the management area is approximately 35% broadleaf woodland, 30% coniferous woodland, and 30% desert grassland, with small amounts of chaparral and deciduous riparian. (See Figure 4.1 for an overview map.)

Natural History

The Peloncillo Mountains and their flanking valleys owe much of their biological glory to their unique geographic position. The long mountain range creates a sky island bridge between the Sierra Madre Occidental and the Rocky Mountains. Far ranging species such as jaguar, and black bear can move along the Peloncillos from the mountains of Mexico north

to the Gila River watershed. The most spectacular example of this connectivity was the jaguar photographed in the Forest in 1996. The large male spotted here is believed to have moved north from a population in Sonora. The bridge of the Peloncillos straddles the eastern edge of the Sonoran Desert and the western edge of the Chihuahuan Desert, while the Animas Valley on its eastern side is the southwestern most extension of the Great Plains. This creates a great intermingling of species. Great Plains species such as the Ord's kangaroo rat are found here next desert-adapted species such as mesquite.

The Peloncillo Ecosystem Management Area lies in one of the most biologically diverse and unfragmented landscapes remaining in North America. The southern portion of the Peloncillo range supports some of the most extensive and well developed Madrean evergreen woodland found in New Mexico. The great diversity of habitat here supports a number of bird species that are threatened or endangered in New Mexico including elegant trogon, buff-collared nightjar and Aplomado falcon. The range harbors the only fully native population of Gould's Turkey, though the species has been reintroduced into a few other sky island mountain ranges. Birds are the most visible form of biodiversity with at least 318 species occurring in the Peloncillo region including 15 species of hummingbirds alone. Because the mountains and canyons of the Peloncillos are located between

wintering and summering grounds of hundreds of neotropical migrant bird species, they support biological diversity of migrant birds both in the United States and Mexico.¹ Opening from the spine of the Peloncillo range south toward Mexico and Rio Bavispe, Clanton Canyon and Guadalupe Canyon contain excellent riparian habitat. These canyons support many species of concern, as well as the highest avian diversity, in the state of New Mexico.² Many species of butterflies, most famously the monarch, also travel the continental pathway of the Peloncillos between the tropical south and temperate north.

Mammal diversity in the area is equally high. The flanking Animas Valley has recorded 75 mammal species, more than are known for Yellowstone National Park. In the San Simon Valley, west of the mountains, one study plot found 25 species of small mammals present.

The New Mexico ridge-nosed rattlesnake, one of the rarest snakes in the United States inhabits rocky hillsides of the Peloncillos.

Human History and Pre-History

According to archaeological evidence, humans have made the Peloncillo region their home nearly continuously for the last 13,000 years. These residents ranged from Paleo-Indians spear-hunting mammoths to Spanish crusaders seeking converts and copper, and from Apaches — for 300 years the dominant human presence in the region — to Euro-American wanderers acting out the drama of manifest destiny. During most of discernible history, the Peloncillo area was a cultural crossroads where distinct peoples lived in close proximity and came together for trading, raiding, and boundary squabbles. This geographic mixing has created a wealth of cultural resources in the area

The Peloncillos lie in a region of particular importance to Paleo-Indian studies because the region has experienced significantly less severe erosion than adjacent areas. Significant remains from the Clovis and Folsom cultures of the Paleo-Indian period have

been found in Cloverdale Valley on the eastern side of the Management Area. The archaeological site in the Cloverdale area is thought to be a retooling area where weapons were repaired.³

Despite Spanish claim to the area, for most of recorded history the Peloncillo region, including the Chiricahua and Animas Mountains, was controlled more completely by Apaches than by any other nation. Many old maps simply label the region “Apacheria.” The Peloncillos were a vital corridor for the Apaches because the range connects with the Sierra Madres and the scattered ranges of the Sky Islands — sanctuaries the semi-nomadic Apaches used frequently. In fact, few ranges figure more prominently in the history of U.S.-Apache relations than the Peloncillos.⁴ In 1872, a treaty with Apache leader Cochise gave the Chiricahua Apaches a reservation in a portion of their homeland, the eastern portion of present-day Cochise County. Following Cochise’s death in 1874, the reservation was terminated and the Chiricahuas were marched to the San Carlos Reservation.⁵ When Geronimos’ band of Apaches later rebelled and left the reservation system, the Peloncillos provided a place of refuge where the army was reluctant to follow. The small band of Chiricahuas would move between San Carlos and the Sierra Madre Mountains using Guadalupe Canyon as one of their major corridors. By the mid-1880s military action had reduced the number of Apaches outside the reservations to perhaps 50; though tough and clever, they were vastly outnumbered by both U.S. and Mexican forces. The Peloncillos, which had once been a sanctuary for the Apaches, became the site of their final surrender. On 3 September 1886 Geronimo and his followers — 19 men and 28 women and children — surrendered to General Nelson Miles in Skeleton Canyon.

Following the final surrender of Geronimo and the arrival of the transcontinental railroad in southern Arizona, Anglo-American settlement boomed and peaked during the 1910s. Cattle ranching quickly became the major economic activity in the area.

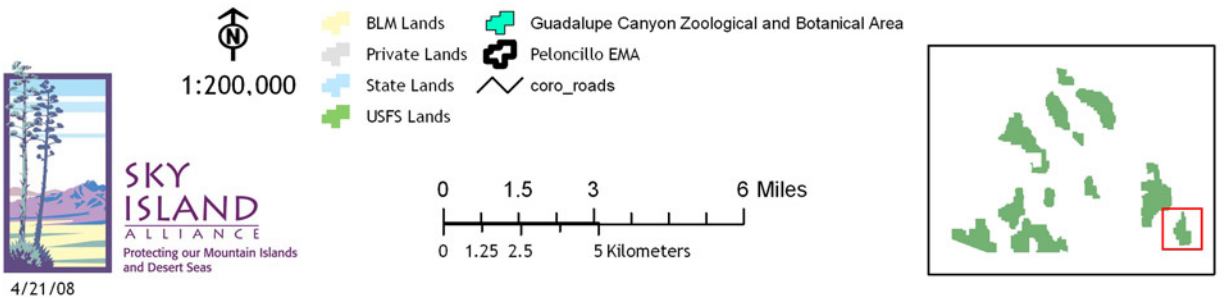
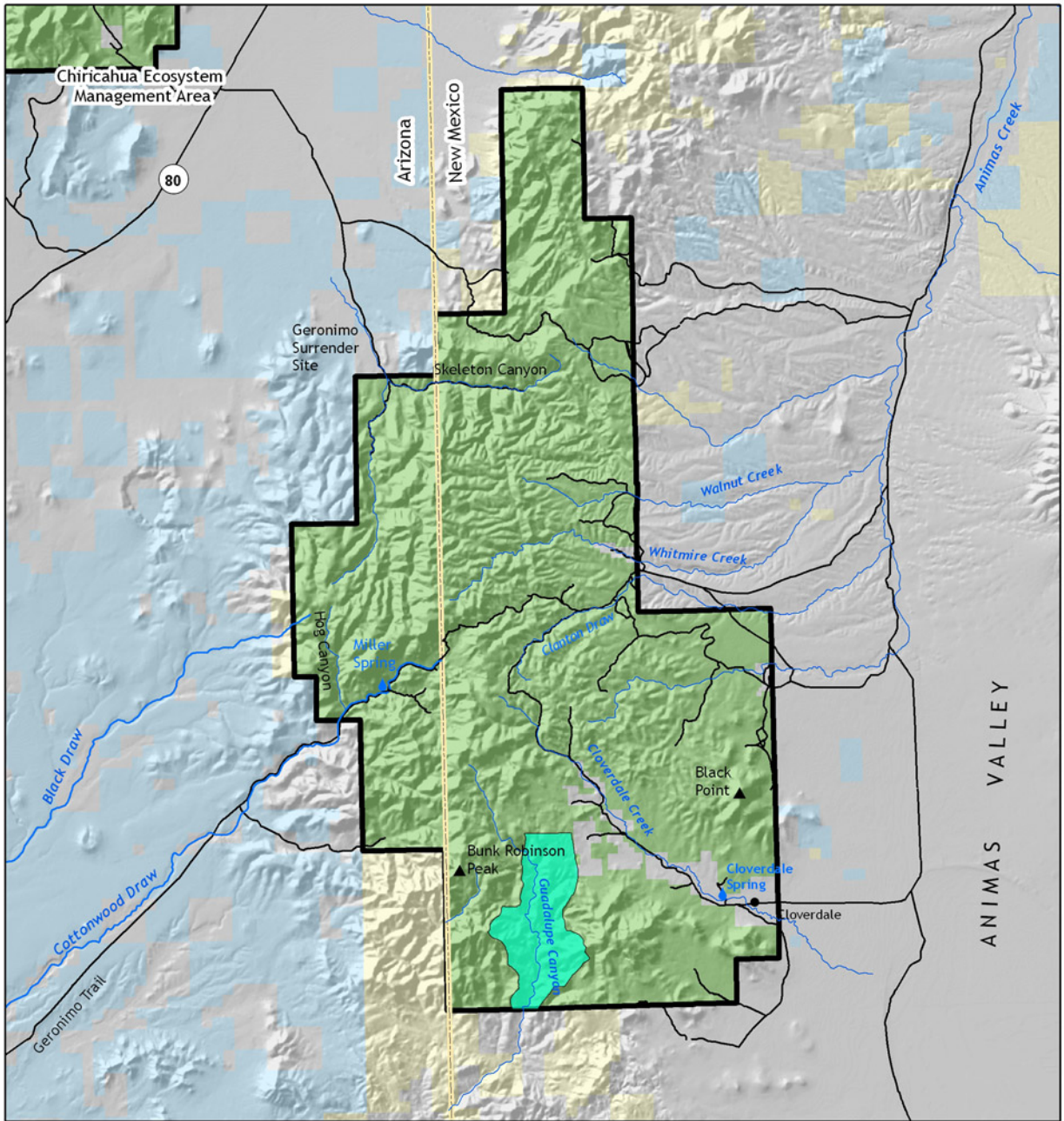


Figure 4.1 Overview of Peloncillo EMA

Elements of Biological Diversity and Cultural Heritage

The Peloncillo Ecosystem Management Area harbors a unique combination of vegetation types and species that contribute to the biological diversity of the Coronado National Forest. The Forest Service recognizes that building a framework for ecological sustainability will require management of entire biological communities combined with special management for particular species. For revision of the Forest Plan the Forest Service identified species that will be the focus of planning efforts. Species and vegetation types of management interest found across the Coronado National Forest were described and listed in the Forest Overview (Table 1.1, page 1-11). Described here are species and vegetation types specifically found on the Peloncillo Ecosystem Management Area. The Forest Service identified species of plants and animals including Threatened or Endangered species, along with other species determined to be Species of Concern or Species of Interest due to management issues (Table 4.1).

Ecological systems and the processes that sustain them are the foundations of native biological diversity. Vegetation communities and aquatic habitats that are especially species rich, diverse, or threatened; or are endemic to the region or locality are of particular management concern. To evaluate current conditions and management prescriptions for ecological systems the Forest Service is using the framework of Potential Natural Vegetation Types. Potential Natural Vegetation Types are defined as the vegetation that would dominate a site under natural disturbance regimes and biological processes. Using this classification allows current vegetation to be compared to its historical range of variation. Because Potential Natural Vegetation Types are relatively broad groupings, and because the Forest contains a high diversity of vegetation types, we present ecological systems as a focus for management direction. These ecological systems are cross-walked with the Potential Natural Vegetation Types used by the Forest Service (Table 4.2). Although there are many fine variations in plant communities on the Peloncillo Ecosystem Management Area, the broader classifications of ecological systems are grouped so as to be most useful for management actions such as mapping, land management, and monitoring. Plant communities

Table 4.1 Species Identified by the Forest Service to Guide Management Decisions

Amphibians	
<i>Rana chiricahuensis</i>	Chiricahua Leopard Frog
Birds	
<i>Ammodramus savannarum</i>	Arizona Grasshopper Sparrow
<i>Cyrtonix montezumae</i>	Montezuma Quail
<i>Empidonax fulvifrons pygmaeus</i>	Northern Buff-breasted Flycatcher
<i>Euptilotis neoxenus</i>	Eared Quetzal
<i>Falco femoralis septentrionalis</i>	Northern Aplomado Falcon
<i>Meleagris gallopavo mexicana</i>	Gould's Turkey
<i>Trogon elegans</i>	Elegant Trogon
Insects	
<i>Adoaeoides prittwitzii</i>	Sunrise Skipper
<i>Cicindela oregona maricopa</i>	Maricopa Tiger Beetle
Mammals	
<i>Canis lupus baileyi</i>	Mexican Gray Wolf
<i>Choeronycteris mexicana</i>	Mexican Long-tongued Bat
<i>Lasiurus blossevillii</i>	Western Red Bat
<i>Leptonycteris mexicana</i>	Mexican Long-nosed Bat
<i>Panthera onca</i>	Jaguar
<i>Sorex arizonae</i>	Arizona Shrew
Plants	
<i>Astragalus cobrensis</i> var. <i>maguirei</i>	Copper Mine Milk-vetch
<i>Bouteloua parryi</i>	Parry's Gramma
<i>Carex ultra</i>	Cochise Sedge
<i>Eriogonum arizonicum</i>	Arizona Wild-buckwheat
<i>Escobaria orcuttii</i>	Orcutt's Foxtail Cactus
<i>Escobaria vivipara</i> var. <i>bisbeeana</i>	Bisbee's Pincushion Cactus
<i>Fraxinus papillosa</i>	Chihuahua Ash
<i>Limosella pubiflora</i>	Chiricahua Mudwort
<i>Mammillaria heyderi</i> var. <i>bullingtoniana</i>	Little Nipple Cactus
<i>Penstemon superbus</i>	Superb Beardtongue
<i>Perityle dissecta</i>	Slimlobe Rockdaisy
<i>Talinum humile</i>	Pinos Altos Mtns. Flameflower
<i>Vauquelinia californica</i> ssp. <i>pauciflora</i>	Arizona Limestone Rosewood
Reptiles	
<i>Aspidoscelis burti stictogramma</i>	Canyon Spotted Whiptail
<i>Crotalus willardi obscurus</i>	NM Ridge-nosed Rattlesnake
<i>Sceloporus slevini</i>	Slevin's Bunchgrass Lizard
<i>Tantilla yaquia</i>	Yaqui Black-headed Snake
<i>Thamnophis eques megalops</i>	Northern Mexican Gartersnake

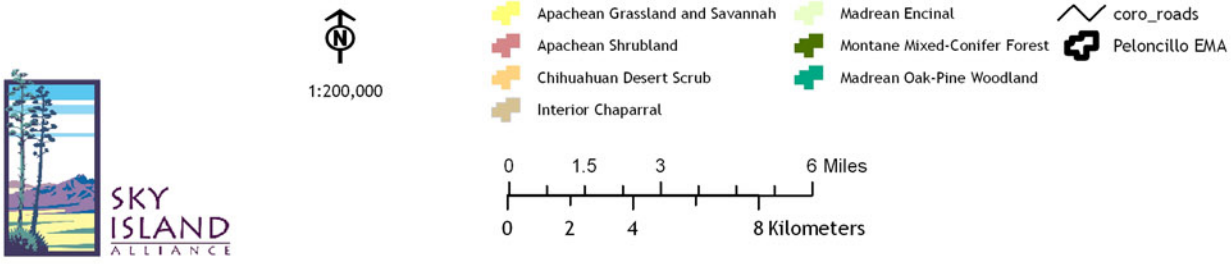
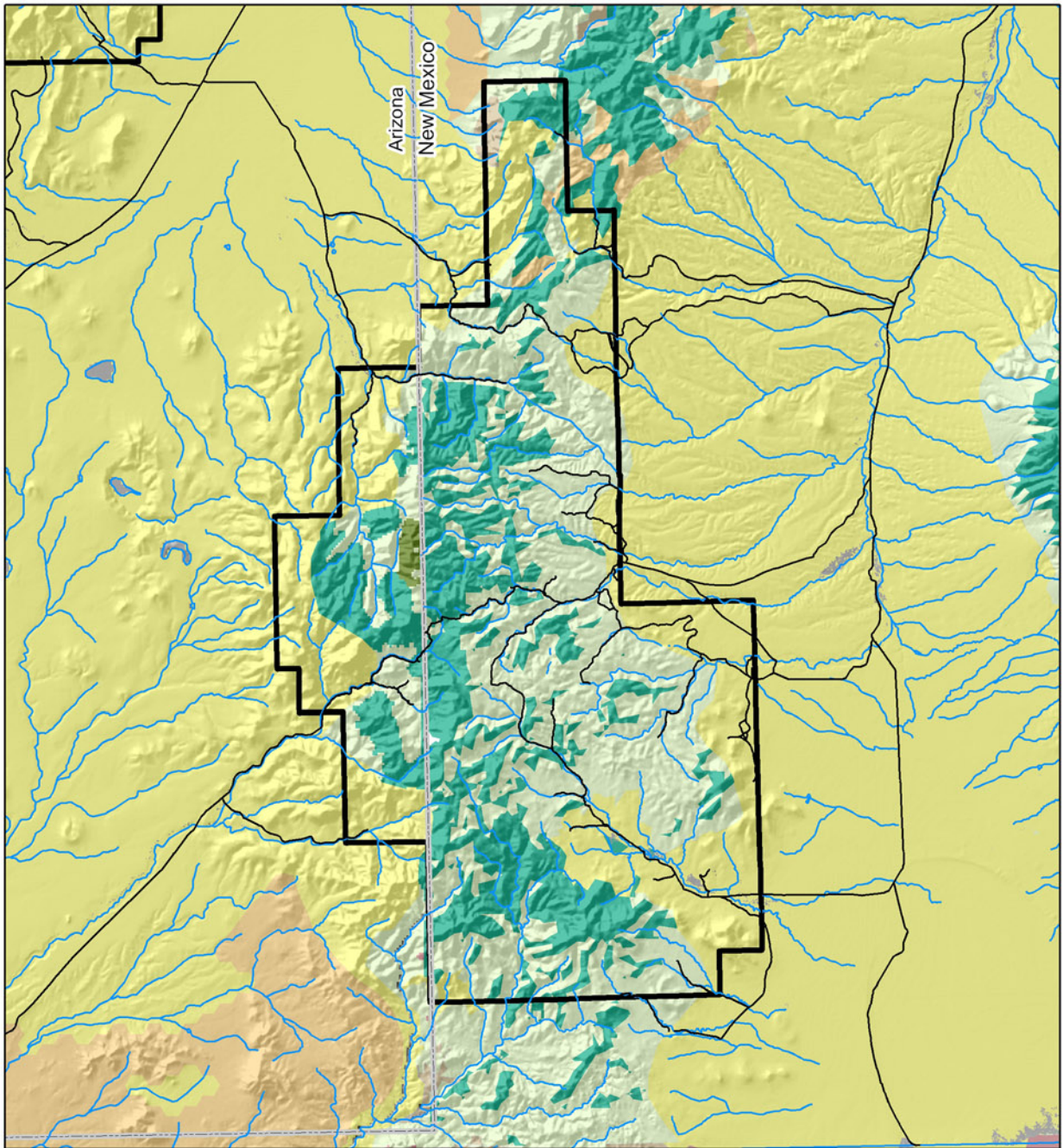


Figure 4.2 Ecological Systems of the Peloncillo EMA

were grouped based on shared characteristics such as natural processes (e.g. fire and flood), substrates (e.g. shallow soils, limestone outcroppings), and local climate.⁶ Protection of ecological systems will help ensure the protection of biological diversity in the Peloncillos. Figure 4.2 shows the distribution of ecological systems in the Peloncillos. Through contact with regional scientists and experts, and other people familiar with the Peloncillos, we identified ecological systems, physiographic features, additional species and cultural resources that should also be considered in the Forest Plan revision.

Species that will need special management attention include species that are endemic to the region or locality, species that have a restricted distribution within the region, and species dependent on specialized habitat. Other species that will need special consideration are species that are rare, vulnerable or declining throughout their ranges; are rare, imperiled or vulnerable in the U.S. portion of their ranges that overlap the Coronado National Forest; or are harvested for economic interests. These species may not be adequately protected by managing for ecological systems and may require specific management actions or monitoring. Table 4.3 lists additional species whose needs should be assessed during plan revision. Many of the bird species that have been identified are species that are rare or imperiled in the state of New Mexico even though they may be more abundant in Arizona.

The Peloncillo Mountains contain a wealth of prehistoric and historic influences. Visible and physical remnants of previous human habitation of the area include built structures, physical sites, or objects or assemblages of material culture. Human uses of the land compatible with the protection of biological diversity, and traditional Apache uses of the land are also an important part of the Cultural Heritage of the area (Table 4.4).

Table 4.2 Foundations of Native Biological Diversity

“Potential Natural Vegetation Types” (bold) as they correspond with The Nature Conservancy’s “Ecological Systems”
Desert Communities Chihuahuan Desert Scrub
Interior Chaparral Interior Chaparral
Madrean Encinal Woodland Madrean Encinal
Madrean Pine-oak Woodland Madrean pine-oak Woodland
Mixed Conifer Forest Montane Mixed-Conifer Forest
Semi-desert Grasslands Apachean Grassland and Savannah Apachean Shrubland
Communities
Cienega Chihuahuan Pine stands
Physiographic Features
Devil’s Kitchen Ephemeral watercourses Seeps Scenic resources in Classes 1-3 and Attractiveness Class Distinctive

Table 4.3 Additional Species that Require Special Management Consideration

Amphibians		Insects	
<i>Rana yavapaiensis</i>	Lowland Leopard Frog	<i>Agathymus aryxna</i>	Arizona Giant-skipper
<i>Spea multiplicata</i>	New Mexico Spadefoot	<i>Agathymus polingi</i>	Poling's Giant-skipper
		<i>Calephelis arizonensis</i>	Arizona Metalmark
		<i>Cicindela purpurea cimarrona</i>	A Tiger Beetle
		<i>Limenitis archippus obsoleta</i>	Viceroy
Birds		Mammals	
<i>Amazilia violiceps</i>	Violet-crowned Hummingbird	<i>Didelphis virginiana californica</i>	Mexican Opossum
<i>Aphelocoma ultramarina</i>	Mexican Jay	<i>Myotis velifer</i>	Cave Myotis
<i>Asturina nitida maxima</i>	Northern Gray Hawk	<i>Nasua narica</i>	White-nosed Coati
<i>Buteo albonotatus</i>	Zone-tailed Hawk	<i>Panthera onca</i>	Jaguar
<i>Buteogallus anthracinus</i>	Common Black-hawk	<i>Sigmodon ochrognathus</i>	Yellow-nosed Cotton Rat
<i>Callipepla squamata</i>	Scaled Quail		
<i>Calothorax lucifer</i>	Lucifer Hummingbird		
<i>Calypte costae</i>	Costa's Hummingbird		
<i>Camptostoma imberbe</i>	Northern Beardless-tyrannulet		
<i>Camprimulgus ridgwayi</i>	Buff-collared Nightjar		
<i>Columbina passerina</i>	Common Ground-dove	Mollusks	
<i>Cyanthus latirostris</i>	Broad-billed Hummingbird	<i>Sonorella hatchitana peloncillensis</i>	Talus Snail (Skull Canyon)
<i>Dendroica graciae</i>	Grace's Warbler		
<i>Megascops trichopsis</i>	Whiskered Screech Owl	Other Invertebrates	
<i>Melanerpes uropygialis</i>	Gila Woodpecker	<i>Diplocentrus peloncillensis</i>	Peloncillo Scorpion
<i>Micrathene whitneyi</i>	Elf Owl		
<i>Myiarchus tuberculifer</i>	Dusky-capped Flycatcher	Reptiles	
<i>Myiarchus tyrannulus</i>	Brown-crested Flycatcher	<i>Crotalus lepidus</i>	Rock Rattlesnake
<i>Myioborus pictus</i>	Painted Redstart	<i>Heloderma suspectum</i>	Gila Monster
<i>Passerina versicolor</i>	Varied Bunting	<i>Lampropeltis pyromelana pyromelana</i>	Arizona Mountain Kingsnake
<i>Peucedramus taeniatus</i>	Olive Warbler	<i>Phrynosoma cornutum</i>	Texas Horned Lizard
<i>Picoides arizonae</i>	Arizona Woodpecker	<i>Senticolis triaspis</i>	Green Ratsnake
<i>Piranga flava</i>	Hepatic Tanager	<i>Sceloporus virgatus</i>	Striped Plateau Lizard
<i>Poecile sclateri</i>	Mexican Chickadee		
<i>Polioptila nigriceps</i>	Black-capped Gnatcatcher	Plants	
<i>Tyrannus crassirostris</i>	Thick-billed Kingbird	<i>Bouteloua eludens</i>	Santa Rita Gramma
<i>Vireo bellii arizonae</i>	Arizona Bell's Vireo	<i>Bouteloua eriopida</i>	Black Gramma
<i>Vireo huttoni</i>	Hutton's Vireo	<i>Coryphantha robbinsorum</i>	Cochise Pincushion Cactus
<i>Vireo vicinior</i>	Gray Vireo	<i>Nolina microcarpa</i>	Sacahuista Beargrass
		Faunal Assemblages	
		Breeding congregations of mixed toad species	

Table 4.4 Elements of Cultural Heritage

Human Prehistory
Paleo-Indian weapons repair site near Cloverdale
Human History
Black Rock Civilian Conservation Corps historic dam (near Geronimo Trail)
Old Cloverdale post office
Cloverdale dance floor
Cochise's Serrampion Camp (on east side of Skeleton Canyon)
Surrender site of Geronimo
Other Values
Opportunities for quiet and solitude

Conservation Assets

Conservation assets work on behalf of desired conditions and against the threats to the ecological and cultural elements of the Dragoons. They will contribute to the Forest Service's ability to maintain ecological sustainability on the Management Area. The following emerged as strengths and opportunities for conservation on the Drought Ecosystem Management Area.

Cloverdale Cienega

Cloverdale Cienega is fed by Cloverdale Creek, which is the only semi-perennial creek in the Peloncillos and supports one of the healthiest populations of Chiricahua Leopard Frogs in the Sky Island region of southern Arizona and southwestern New Mexico.⁷ The watershed of Cloverdale Creek is especially healthy because of good grazing practices in the area, prescribed burning by land managers, and a relatively intact fire regime. Cloverdale Creek and the cienega it supports are of particular importance to the federally listed Endangered Chiricahua Leopard Frog because they are free of exotic bullfrogs, predatory fishes, and the highly lethal chytrid fungus, all of which have contributed to the drastic decline of native frog populations in the Sky Island region. The cienega is also relatively free from other invasive species and offers an excellent restoration opportunity. Along with the rare leopard frog, the creek and cienega support other riparian species of the Sky Island region that are becoming increasingly rare because of rapidly disappearing riparian habitat. Cloverdale Cienega is a unique asset to the Coronado National Forest.

The Diamond A Ranch

The Diamond A Ranch (formerly the Gray Ranch) covers 321,000 acres (500 square miles) in the boot-heel of New Mexico (far southwest corner). Its biological wealth includes more than 50 natural communities, more than 700 species of plants, 75 mammals, 50 reptiles and amphibians, and more than 170 species of breeding birds. In 1990 The Nature Conservancy purchased the ranch; in 1993 it transferred the property to the newly formed Animas Foundation, an organization dedicated to protecting the natural values of the Gray Ranch while maintaining the cultural and economic heritage of the boot-heel country. The Animas Foundation is a partner in the Malpai Borderlands Group.

International and National Recognition of Conservation Value

In 2003 World Wildlife Fund partnered with Sky Island Alliance and other organizations to produce a report that categorized the Peloncillo region as very high in reptile, amphibian, bird, invertebrate, and plant diversity, as well as significant in endemism and rare species.¹⁰

The Nature Conservancy recognizes the Chihuahuan Desert as a conservation target. The Peloncillo Mountains and Baker Canyon are situated in the Mexican Highlands section of the Chihuahuan Desert.

Clanton Canyon in the Peloncillo EMA has been declared an Important Bird Area by the National Audubon Society. This designation takes into account state or federally listed endangered and threatened species; rare, unique, or representative habitats; and significant concentrations of species or assemblages, among other qualities. Clanton Canyon is an extension of the Sierra Madre Occidental from Mexico and contains birds from the Madrean habitats.

Guadalupe Canyon in the southern Peloncillo Mountains, along the southern border of the Coronado National Forest, has been declared an Important Bird Area by the National Audubon Society. This canyon supports many bird species rarely seen in the United States because the canyon is the northeastern edge of their range. Some such species include the Aplomado falcon, violet-crowned hummingbird, and buff-collared nightjar.¹¹

Malpai Borderlands Group

The Malpai Borderlands Group (MBG) was formed in 1991 by working ranchers in the Peloncillo area. The group formed in response to the threat of fragmentation of the landscape through increasing population pressure, as well as declining productivity and loss of biological diversity accompanying the encroachment of woody species on grasslands. The goal of the Malpai Group is "to restore and maintain the natural processes that create and protect a healthy, unfragmented landscape to support a diverse, flourishing community of human plant and animal life." To this end, MBG has secured conservation easements on more than 72,000 acres of private land

in the southern part of the Peloncillo Mountains to protect against irreparable fragmentation of this wild landscape.⁸ MBG also offers an innovative “grassbanking” program by which neighboring ranchers experiencing problems with drought and overutilization can rest their ranches from grazing by moving their herds to the Diamond A Ranch under reciprocal conservation agreements. MBG currently maintains a Safe Harbor Agreement for the Chiricahua Leopard Frog and will soon be signing a Habitat Conservation Plan.

The group has been a leader in the reintroduction of fire to the Peloncillo region through controlled burns and changes in fire management on their lands. In a unique example of private landowner initiative and agency cooperation, local residents and ranchers have pushed for more use of fire, and the agencies have responded.⁹ In cooperation with federal agencies, a comprehensive fire plan was developed, which

encompasses approximately 800,000 acres of both private and public lands. The actions of Malpai Borderlands Group benefit the ecology of the region and the financial well-being of rural land users.

Peloncillo Programmatic Fire Plan

The Peloncillo Programmatic Fire Plan is a multi-agency and -landowner strategy for fire management in the southern Peloncillo Mountains. The plan encompasses approximately 800,000 acres of private and public lands and has greatly aided the reintroduction of fire in the region.

Topography of Wilderness Study Areas

The existing WSAs in the Peloncillo EMA are protected to a certain extent by their rugged topography. These areas provide outstanding opportunities for solitude and primitive recreation, while protecting watersheds, wildlife, scenery, and cultural and spiritual values.

Threats to the Forest: A Need for Change

The Coronado National Forest and surrounding lands have experienced a variety of changes in the twenty years since the current Forest Plan was written. Management concerns and threats exist in the Peloncillos that are not addressed in the Forest Plan, or have not been adequately dealt through management. The Peloncillos remain a relatively remote area on the Coronado National Forest that receives limited recreational use compared to the nearby Chiricahua and Dragoon Mountains. However, as the population of the region has grown in the last twenty years, so has use of the Forest. Increased numbers of recreationists, coupled with the proliferation of the motorized recreation industry has led to greater recreational impacts on the Forest. The Peloncillo Management Area is located in a region that is beginning to experience exurban growth, including the subdivision of large ranches into ranchettes and the development of an ultralight flight center in neighboring Rodeo. Other nearby recreation areas are becoming more congested as population grows in the region and this pattern will push recreationist into more remote areas of the Forest. The plan revision will update existing management direction and add new management direction, both of which should address these concerns. The following issues present

challenges to ecological sustainability on the Peloncillo Ecosystem Management Area.

ADJACENT LAND USES

Suburban and exurban development threaten to rapidly fragment the relatively natural landscape of the San Simon and San Bernardino Valleys. This type of development threatens the integrity of wildlife corridors between the Peloncillos and surrounding mountain ranges, causes direct loss of wildlife habitat, and creates social resistance to grassland fires. Development will lead to more areas of wildland/urban interface bordering the Peloncillo EMA. Along with private and BLM lands, state lands of high-quality conservation value surround the Peloncillos. These lands are eligible to be leased or sold for development, which would have major effects on Forest lands. This could also greatly impact wildlife movement corridors between the Peloncillo Mountains and the Chiricahua Mountains, the San Bernardino Valley and lands in Mexico.

Resources likely affected by land development adjacent to the EMA include: geological features, springs, ephemeral watercourses, seeps, scenic resources, all ecological systems, all native vegetation types and their associated flora and fauna; species

particularly sensitive to direct human disturbance (e.g., bats, lizards, desert box turtle, jaguar, ocelot, Mexican spotted owl, Coues' white-tailed deer); wide-ranging species of terrestrial animals: mountain lion, jaguar, ocelot, black bear, white-nosed coati, pronghorn, deer; prehistoric and historical sites, structures, and artifacts; Apachean grassland and savanna, Madrean pine-oak woodland, Madrean encinal grasslands, Chihuahuan pine stands; and animal species dependent on fire-adapted vegetation communities (e.g., Mexican spotted owl, New Mexico ridge-nosed rattlesnake).

EXTRACTIVE USES

Commercial/cultural collection of plants and non-game animals leads to a depletion of species populations and the depletion of habitat. Surrounding habitat is degraded by vehicles driving off-road to reach desired plant and animal species (especially beargrass). Species affected by collection include the Arizona mountain kingsnake, New Mexico ridge-nosed rattlesnake, green ratsnake, and beargrass. Gould's turkey, and Montezuma quail¹² are affected by the collection of beargrass on which they are dependent.

Cutting or removal of snags, dead trees, and branches containing or suitable for nesting cavities decreases essential habitat for the whiskered screech owl, elf owl, eared quetzal, Arizona woodpecker, and Gila woodpecker.

Poorly managed livestock grazing currently affects a minor portion of the rangeland in the Peloncillo EMA. It is primarily a potential future threat if the livestock management in the area changes. Resources affected by habitat damage and removal of grass cover include: riparian-associated species Coppermine Milkvetch (*Astragalus cobrensis maguirei*), Cochise sedge (*Carex ultra*), ecological systems historically maintained by low-intensity, regular fires,¹³ scaled quail, and Montezuma quail.¹⁴

Potential mineral withdrawal threats in the Peloncillos include extraction of tin, molybdenum, gold, or various other metals in the central part of the EMA.

INVASIVE SPECIES

BULLFROGS: Competition with, and predation on, native species, as well as the transmission of Chytrid fungus, makes this a particularly concerning threat to the healthy population of Chiricahua leopard frogs at

the Cloverdale Cienega. Impacts would be felt as well by the lowland leopard frog and the Northern Mexican gartersnake.

CRAYFISH: Though not currently found here, the potential for competition with, and predation on, native species, combined with the destruction of native stream vegetation, should have this species high on any list of species to be monitored for in this EMA. If they were to make their way into the Peloncillos, they could affect springs, ephemeral watercourses, all aquatic ecological systems and their associated flora and fauna

NONNATIVE GRASSES: Displacement of native grasses results in changes to the fire regime and intensity of fire. Affected are semidesert grasslands and savanna; cienega habitat; native grass species

TREE OF HEAVEN (*Ailanthus altissima*): Competes with native vegetation and prevents the establishment of native species through toxin production. Affected are native tree species and wildlife that depends on them.

BUFFELGRASS: Though not currently present on the EMA, the ongoing development of cold-hardy species of buffelgrass are of future concern here. The presence of buffelgrass would result in competition with native grasses, and the alteration of natural fuel loads and fire regimes. Affected would be Apachean grasslands and Savannas, and Chihuahuan desert scrub.

NON-EXTRACTIVE USES

The San Simon Valley has recently become home to an ultralight flight club. Low altitude ultralight aircraft overflights, including flights through canyons, are an increasing problem in the Peloncillos. Disturbance of wildlife, noise pollution, and an increased danger for uncontrollable wildfire, and wildfire during unnatural times of the year are all new management concerns raised by the use of these aircraft over Forest lands. Affected is all native vegetation types and their associated flora and fauna; vegetation types with unnatural fuel loading due to historical fire suppression; animal species especially sensitive to direct human disturbance (e.g., avian species that use canyon habitat); Apache goshawk. This type of motorized recreation also affects the recreation values of quiet and solitude, both of which are sought by recreationists in the Peloncillos.

Increasing human population in the region and immediate vicinity of the Peloncillos is contributing to

unmanaged visitation. This is damaging elements of biological diversity and cultural heritage along with disrupting traditional human uses in the area. Visitation will only increase in the Peloncillos as the region continues to grow and people continue to seek outdoor recreation experiences. Unmanaged visitation negatively affects physiographic features, all ecological systems, all native vegetation types and their associated flora and fauna; species sensitive to human disturbance (bats, lizards, desert box turtle, jaguar, Mexican spotted owl, Coues' white-tailed deer); prehistoric and historical sites, structures, and artifacts.

ROADS AND TRANSPORTATION SYSTEM

Decreased availability of open space outside of public lands, combined with dramatic increases in motorized recreation is likely to lead to increased impacts from off-road vehicle use in the Peloncillos. Motorized recreation has already brought economic costs to the Peloncillos through acts such as cut fences, vandalism of water tanks, and loss of forage from soil erosion and gullying. Threats include existing non-system roads and creation of new non-system roads combined with a lack of enforcement of the legal transportation system.

Affected resources include: springs; ephemeral watercourses; seeps; scenic resources, all ecological systems, riparian plant and animal species, species especially sensitive to direct disturbance, wide-ranging species of terrestrial animals, reptile species collected for captivity, game species; prehistoric and historical sites, structures, and artifacts and traditional human uses of the land.

U.S.-MEXICO BORDER

Human traffic, smuggling traffic, and efforts by the U.S. Border Patrol to control the flow of people and smuggled goods is impacting the land. The Peloncillo Mountain range and surrounding valleys form a continuum of natural lands extending across the border to the Sky Islands of northern Mexico. Increasingly elaborate fencing and road networks will fragment the land and disrupt wildlife movement. Some species dependent on permeability of the border include jaguar, ocelot, pronghorn, black bear, Gould's turkey, white-nosed coati.

SITE-SPECIFIC THREATS

Cloverdale Cienega

In the past century cienegas and other marshland habitats in Arizona have decreased significantly from widespread distribution to small-scattered remnants.

Cloverdale Cienega is one of the most extensive remaining cienegas in the region and has excellent restoration potential. Threats to the area include water diversions; water table drawdown, and the ongoing drought, which may lead to a decrease in health of Cloverdale Cienega and the species that depend on it; and a road through the cienega which impairs the proper functioning of this rare wetland through interference with hydrological flow regimes. Feral pigs in the area, are destroying cienega-associated vegetation and the forming extensive wallows (Cloverdale Spring).

The Forest Service has contemplated a multi-site campground in area. Increased recreational use in the area would be particularly detrimental to the cienega health, imperiled species including Chiricahua leopard frog, Cochise sedge and Northern Mexican gartersnake and sensitive cultural sites adjacent to the cienega. This would also create an overflow of impacts onto private property in the area. Affected by all of these threats would be the cienega wetlands and cienega-associated vegetation and species, springs; the Chiricahua leopard frog, Cochise sedge, Northern Mexican gartersnake; and prehistoric and historical sites.

Deer Creek

The Deer Creek Road is causing damage to riparian habitat and has led to severe erosion. Affected are riparian woodland, montane riparian woodland and shrubland, and riparian-associated species

Skeleton Canyon

There currently exists an illegal, user-created trail for motorized vehicles coming from the east into Skeleton Canyon. This is leading to soil erosion and damage to riparian canyon habitat. It will also likely lead to the spread of exotic/invasive species. Affected are Montane Riparian Woodland and Shrubland, and Madrean Encinal grasslands.

Bunk Robinson and Whitmire Canyon Wilderness Study Area (WSA)

When the Forest Service delineated Inventoried Roadless Areas on the Peloncillo EMA under the Roadless Area Planning Rule, they were inaccurately mapped. These errors include eliminating substantial acreage from both the existing Wilderness Study Area, and roadless areas. It is important that the accurate boundary of both Wilderness Study Areas is recognized by the Forest Service so that all of the acreage is managed to maintain wilderness characteristics.

Recommended Objectives and Management Actions

The Peloncillo Ecosystem Management Area (EMA) offers great opportunities for primitive recreation where quiet and solitude can be experienced. The area is part of a vital continental corridor for migratory and wide-ranging species traveling between the tropical south and temperate north. The area was an important cultural crossroads and continues to contribute to the diverse cultural heritage of the region. These region-wide contributions of the Peloncillo Ecosystem Management Area should

be a major focus and driver for future management of this area. New management direction that shows foresight and proactively addresses threats will create a long-term framework for ecological health and sustainability. To confront threats and capitalize on conservation assets, we recommend the following objectives and management actions to be incorporated into the revision of the Coronado National Forest Plan and subsequent project level activities.

Adjacent Land Uses

Objectives

Maintain wildlife corridors between the Peloncillo EMA and (1) the Chiricahua EMA, (2) the northern portion of the Peloncillos range, (3) the northern Sierra Madre Occidental, and (4) other surrounding natural areas.

Actions

Continue to support and work collaboratively with the Malpai Borderlands Group to maintain the natural, open space character of lands adjacent to the Peloncillo EMA.

Work with state and county transportation departments (Arizona, New Mexico, Cochise County, Hidalgo County) in the U.S., as well as the Mexican highway department, to adopt ecologically sensitive road design and to retrofit existing highways to ensure connectivity.

Ecological Restoration

Objectives

Prevent catastrophic stand-replacing wildfires.

Maintain the Cloverdale Cienega as a healthy, functioning wetland.

Actions

Implement the guidelines of the Peloncillo Programmatic Fire Plan for appropriate management response to wildland fire.

Ensure that stock tanks function within the ecological context of their watersheds and provide water to wildlife.

Continue to restore and support the return of natural fire return intervals in the Peloncillos and adjacent land.

Extractive Uses

Objectives

Maintain healthy, functioning ecological systems and the native species associated with those systems.

Restore and maintain mature and old-growth woodland habitat.

Maintain healthy populations of beargrass.

Maintain essential habitat elements for the Mexican Spotted Owl, including rocky canyons with a naturally functioning water cycle and a complex forest structure with uneven-aged, multistoried mature or old-growth stands and snags.

Actions

Mitigate collection of reptile species and poaching of wildlife by (1) minimizing the legal transportation system and (2) increasing Forest Service and law enforcement personnel present on the Peloncillo EMA.

Prevent cutting of dead trees or branches that contain suitable nesting cavities for Whiskered Screech Owl and/or Elf Owl.

Manage and limit the removal of beargrass from the Peloncillo EMA (it is important cover for young turkeys and Montezuma Quail).

Invasive Species

Objectives

- Maintain Cloverdale Cienega as a healthy, functioning wetland free from nonnative predators.
- Restore and maintain lowland and grassland ecological systems.
- Restore historical native wildlife diversity at Cloverdale Cienega.
- Protect prehistoric and historic sites in the Cloverdale area from degradation due to disturbance.

Actions

- Monitor for bullfrogs within a 7-mile radius of Cloverdale Cienega. Eradicate bullfrogs found within this radius.*
- Monitor the Cloverdale area for expansion of existing populations or new invasions of nonnative lovegrasses. Respond with eradication measures.*
- Monitor feral pigs' use of Cloverdale Cienega and adjacent cienega to determine extent of damage they are causing, and species that are being affected. In cooperation with landowner and Sky Island Alliance, develop a management/control plan.*
- Use road closures or re-routing and provide minimum signage to forestall vandalism of the prehistoric site near Cloverdale Cienega.*
- Monitor for buffelgrass invasion along Geronimo Trail. Respond with eradication measures.*
- Monitor for invasion of nonnative crayfish in the EMA's watercourses. Respond with eradication measures.*
- Work collaboratively with individuals and groups in the private sector to conduct surveillance for invasive species: bullfrogs, nonnative lovegrasses, buffelgrass, feral pigs, crayfish, tamarisk and tree of heaven. Contain or eradicate existing invasions. Prevent new invasions.*

Non-extractive Uses

Objectives

- Maintain the Peloncillo EMA as a prime location for quiet and primitive recreation.
- Minimize interference with quiet recreation through management of motorized recreation

Cultural and Historical Tourism

- Promote visitor appreciation of historical and cultural resources.
- Protect historic and prehistoric sites from degradation.

Actions

- Do not develop any formal campgrounds in the EMA.*
- Do not reopen the road through Devil's Kitchen.*
- Exclude ultralight overflights from the Peloncillo EMA.*

Cultural and Historical Tourism

- Use road closures or re-routing and provide minimum signage to forestall vandalism of the prehistoric site near Cloverdale Cienega.*
- Limit public use of historical sites to interpretive use.*
- Strengthen interpretation of these sites.*

Roads/Transportation System

Objectives

- Designate a legal road system (Transportation System) that minimizes negative ecological impacts and damage to cultural resources.
- Maintain a transportation system that minimizes erosion, fragmentation of wildlife habitat, disturbance of wildlife, damage to cultural resources and vegetation, opportunities for poaching and collection of species, and the spread of exotic/invasive species that are aided by roads.
- Minimize the creation of illegal roads by vehicular users.

Actions

- Enforce existing regulations that prohibit cross-country travel and off-highway vehicle use in restricted areas such as washes and special closure areas.*
- Completely exclude the use of All Terrain Vehicles (ATVs) from the EMA with the exception of work vehicles used by permittees, Forest Service, Arizona Game and Fish and New Mexico Game and Fish.*
- Prevent the reopening of the road through Devil's Kitchen (Skeleton Canyon).*
- See Figure 4.3 for the proposed transportation system for the Peloncillo EMA.*

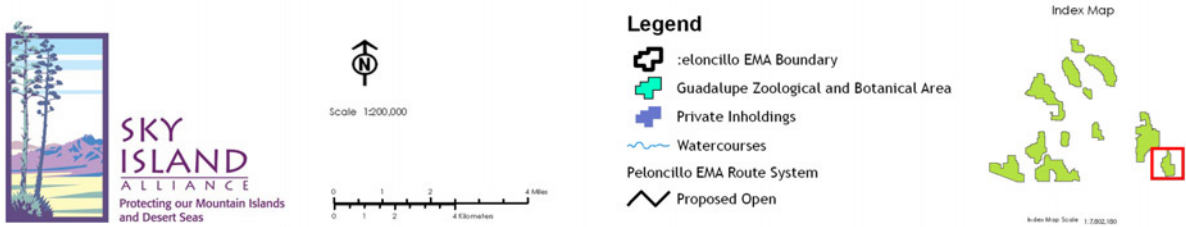
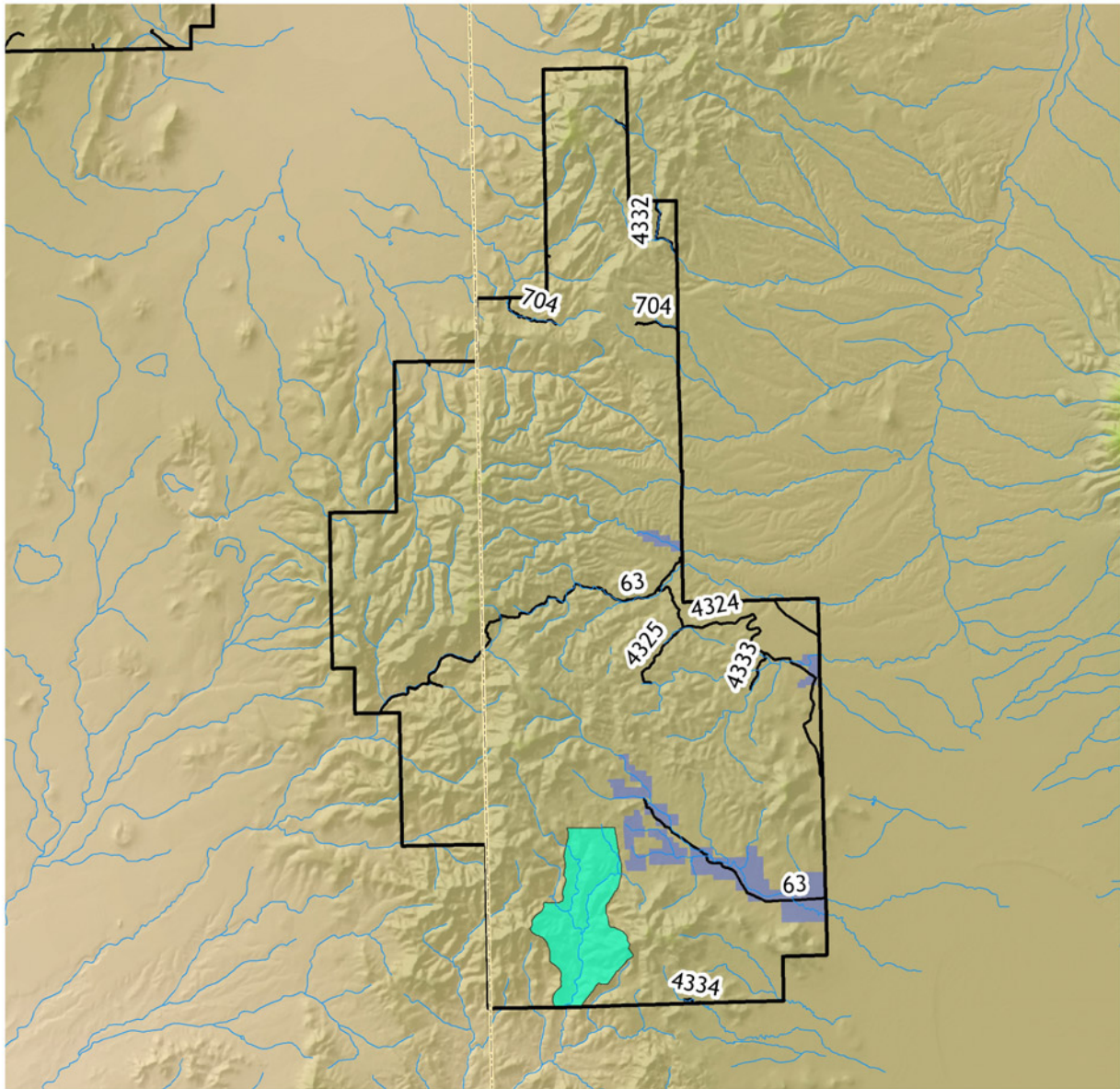


Figure 4.3 Travel Management Plan and Route Recommendations for the Peloncillo EMA

Special Interest Areas

Objectives

Protect Roadless area values and characteristics.

Provide opportunities for quiet recreation on the Peloncillo EMA, including zones of backcountry recreation areas.

Prevent actions that cause or promote the introduction or spread of invasive species (Executive Order 13112).

Minimize habitat fragmentation and degradation, and maintain biological corridors and essential habitat for species through the exclusion of roads.

Actions

Do not designate off-road vehicle routes in the Peloncillo EMA.

Correct existing maps of boundaries of inventoried roadless areas to reflect the true boundaries on the ground.

Wilderness Study Areas

Correct existing maps of boundaries of Wilderness Study Areas to reflect the true boundaries on the ground so that all designated acreage is managed to protect wilderness characteristics.

Continue to manage Bunk Robinson and Whitmire Canyon Wilderness Study Areas to preserve and protect existing wilderness character.

Wilderness

WILDERNESS STUDY AREAS

Roadless areas on the National Forests are becoming increasingly rare and threatened by proliferation of motorized recreation. Wilderness Study Areas (WSA) that encompass these remaining roadless areas offer lasting protection for biological diversity and primitive recreation opportunities. Two acts of Congress established two Wilderness Study Areas (WSAs) administered by the Coronado National Forest in the Peloncillo Mountains. They are to be “administered by the Secretary [of Agriculture] so as to maintain their presently existing wilderness character and potential for inclusion to the National Wilderness Preservation System” (Public Laws 96-550 [19 December 1980] and 98-406 [28 August 1984]). The proper management of these WSAs will protect ecosystem processes and biological diversity of the Peloncillo Ecosystem Management Area

Bunk Robinson WSA

Public Law 96-550 (19 December 1980) established the Bunk Robinson WSA in the state of New Mexico. This bill directed the Secretary of Agriculture to review approximately 15,110 acres of the WSA as to its suitability for preservation as wilderness. Public Law 98-406 (28 August 28 1984) expanded the Bunk Robinson WSA into the state of Arizona. This bill also directed the Secretary of Agriculture to review approximately 850 additional acres in the WSA as to its suitability for preservation as wilderness (for a total of 15,960 acres). Inventory conducted by Sky Island Alliance identified additional roadless lands adjacent to the WSA for a total of

42,706 roadless acres. This larger roadless area contains values consistent with the WSA and enhances the values of the U.S. Forest Service Special Management Area.

The Bunk Robinson WSA and roadless area encompass the main spine of the Peloncillo Mountains from the Clanton Draw Road in the north to the southern boundary of the National Forest, which is about 3.5 miles north of the border with Mexico. Steep, rugged ridges and deep, secluded canyons characterize the area. Some of these canyons contain permanent springs and seeps, providing an important source of water for wildlife. Elevations range from less than 5,000 feet to nearly 6,500 feet at Guadalupe Mountain. Piñon-juniper woodland, Madrean evergreen woodland, and mountain scrub are the predominant vegetation types. Major canyons contain Chihuahua Pine forests, while watered canyons support isolated stands of cottonwood and sycamore. The location of the Bunk Robinson WSA provides a natural passage for unique wildlife from Mexico into the United States. In addition, many rare or sensitive plants and animals occur here.

Whitmire Canyon WSA

Public Law 96-550 (19 December 1980) established the Whitmire Canyon WSA in the state of New Mexico. This bill directed the Secretary of Agriculture to review approximately 7,760 acres of the WSA as to its suitability for preservation as wilderness. Public Law 98-406 (28 August 1984) expanded the Whitmire Canyon WSA into the state of Arizona. This bill also directed the Secretary of Agriculture to review

approximately 5,080 additional acres in the WSA as to its suitability for preservation as wilderness (for a total of 12,840 acres). Inventory conducted by Sky Island Alliance identified additional roadless lands adjacent to the WSA for a total of 38,300 roadless acres. This acreage includes 560 acres of adjacent BLM land on the west side of the National Forest boundary. This larger roadless area contains values consistent with the WSA and enhances the values of the U.S. Forest Service Special Management Area.

The Whitmire Canyon WSA and roadless area encompass the main spine of the Peloncillo Mountains from the Clanton Draw Road in the south to the northern boundary of the Coronado National

Forest in the north. This roadless area is also contiguous with the Gray Peak roadless area on BLM lands to the north. The characteristics of this WSA are very similar to those of the Bunk Robinson WSA (see description above). The Coronado National Forest Land and Resource Management Plan (1986) recommends the Whitmire Canyon WSA for *non-wilderness* management. Nevertheless, until Congress makes a decision, the WSA will be managed “to maintain the existing wilderness character and potential for inclusion in the National Wilderness System” (Coronado National Forest Land and Resource Management Plan, 1986).

Special Management Areas

Special Interest Areas are designated to protect unique values including botanical, zoological, geological, historical, or scenic values. They may also be designated to protect and manage sensitive or imperiled species or other elements of biological diversity. Special Interest Areas help the Forest Service preserve important historic, cultural and natural aspects of our national heritage. One special interest area currently exists on the Peloncillo Ecosystem Management Area, Guadalupe Canyon Zoological and Botanical Area (ZBA). The extraordinary characteristics of the Peloncillo Management Area warrant the expansion of the Guadalupe Canyon ZBA and the designation of new Southern Peloncillo Mountains ZBA.

Guadalupe Canyon Zoological and Botanical Area

According to the 1986 Land and Resource Management Plan for the Coronado National Forest, Guadalupe Canyon has unique flora and fauna that require special management practices. This sector of Management Area 14 includes known essential habitats for threatened and endangered plants and animals. The Management Plan calls for suitable rangelands to be managed at levels A and D. The area is within fire suppression zone 2. Independent of the Forest Service’s recommendations for special designation, the National Audubon Society has highlighted Guadalupe Canyon as an Important Bird Area (see Assets, above).

Proposed Southern Peloncillo ZBA and Guadalupe ZBA expansions

The expansion of the existing Guadalupe ZBA to encompass the entire watershed of Guadalupe Canyon will greatly aid the Forest Service in protecting the outstanding biological features of the area. In combination with additional acreage the newly encompasses the Cloverdale Creek Watershed and Cloverdale Cienega, these proposed special interest areas will help to protect some of the most outstanding riparian habitat found on the Coronado National Forest.

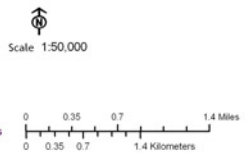
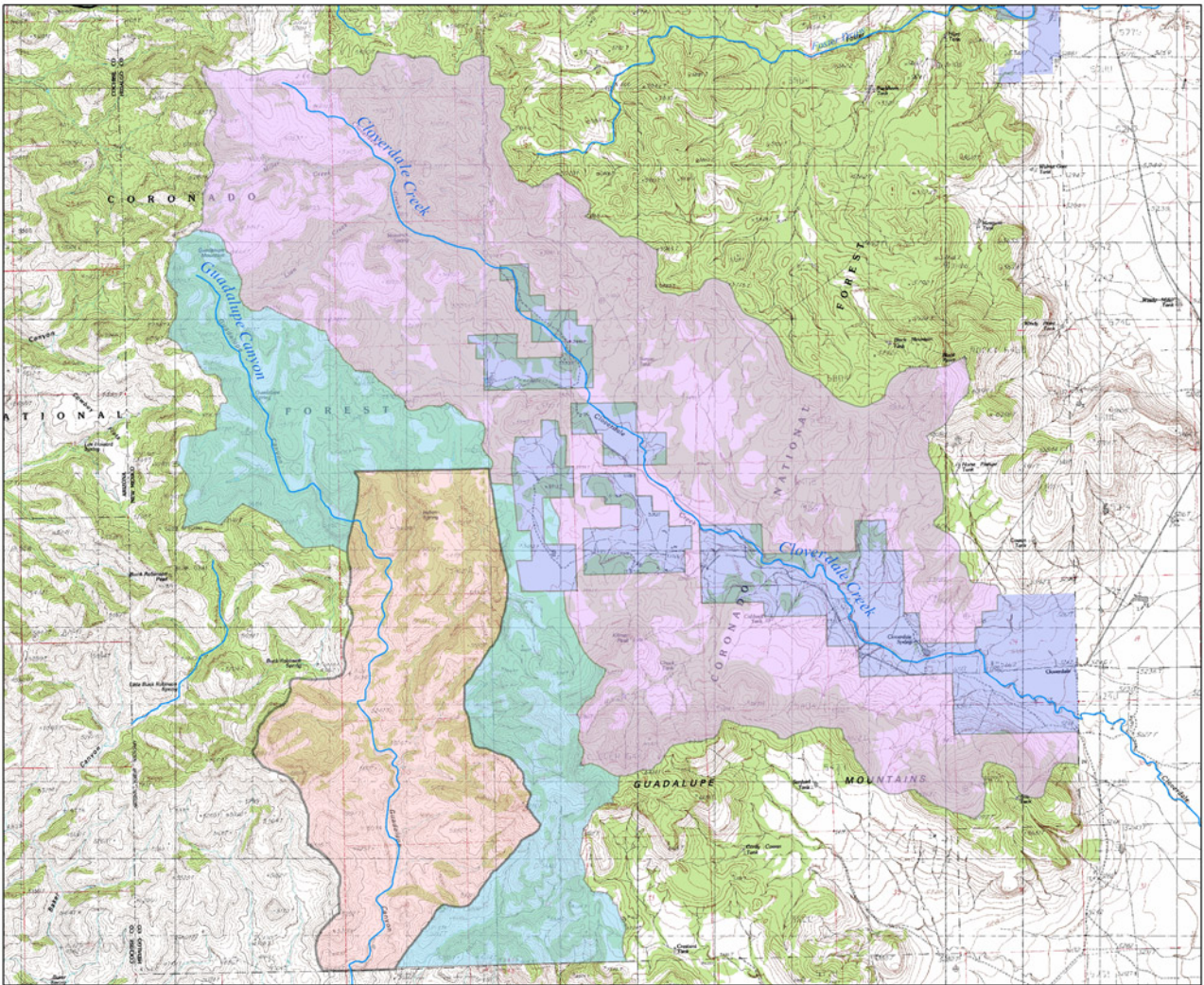
NAME: Southern Peloncillo Mountains Zoological and Botanical Area, Hidalgo County, New Mexico

SIZE: 17,142 acres; existing Guadalupe Canyon Zoological Area, 3,435 acres; Cloverdale Watershed, 9,923 acres; Guadalupe Canyon Watershed Addition, 3,784

BOUNDARIES: Cloverdale and Guadalupe Canyon Watersheds (Figure 4.4)

ELEVATION: Approximately 5,100 to 5,900 feet

GENERAL DESCRIPTION OF AREA: These two watersheds sit in extreme southwestern New Mexico and includes both private and Forest lands. In the Cloverdale Watershed the ephemeral Cloverdale Creek starts approximately one mile above Maverick Spring and flows for 13 miles through a small valley and out into an ancient dried lake bed in the upper Animas Valley. As Cloverdale Creek enters the small Cloverdale Valley it flows through Cloverdale Ciénega, a wetland



- Legend**
- Proposed Guadalupe Canyon ZBA Additions
 - Proposed Southern Peloncillo ZBA
 - Guadalupe Canyon ZBA
 - Private Inholdings
 - Water Courses

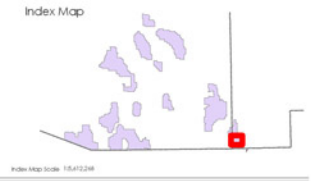


Figure 4.4 Proposed Southern Peloncillo Zoological and Botanical Area

of approximately 150 acres. The Guadalupe Canyon Watershed sits adjacent to the Cloverdale Watershed and a portion of the area is a designated ZBA under the current Forest Plan.

CURRENT USES: The private property in the area is under single family ownership. Public access in Cloverdale is restricted to one parking area and trailhead that allows access to the Forest north and south of the valley. Geronimo Trail provides public access to the upper watershed. In Guadalupe Canyon access is accomplished from Geronimo Trail. Uses in both areas include research, hiking, backpacking, and hunting.

JUSTIFICATION FOR DESIGNATION: The private property in the area is managed for the conservation of natural resources by a family involved in protecting the historic Gray Ranch directly adjacent to the Cloverdale area. Cloverdale Creek, Cloverdale Spring, other springs and associated cienegas in the area compromise one of the largest and healthiest wetland complexes in the State of New Mexico and on the Coronado National Forest. Recent research has identified a robust population of the federal threatened Chiricahua leopard frog (*Rana chiricahuensis*) in the area. This population is free of Chytridiomycosis, a fatal infectious disease that affects amphibians and is caused by the chytrid fungus-*Batrachochytrium dendrobatidis*. Chytridiomycosis has been linked to dramatic population declines and extinctions in western North America, Central America, South America, and eastern Australia. There

is no effective measure for control of the disease in wild populations. This population of frogs is also a source for animal dispersal throughout the watershed. Guadalupe Canyon in the southern Peloncillo Mountains, along the southern border of the Coronado National Forest, has been declared an Important Bird Area by the National Audubon Society. This canyon supports many bird species rarely seen in the United States because the canyon is the northeastern edge of their range. Some such species include the violet-crowned hummingbird and buff-collared nightjar.

RECOMMENDATIONS FOR FUTURE USE: Public access should be limited to the one parking area and trailhead. The road from that point to the landowner's home is on private property and should be removed from the Forest Route System as there are no routes above the private property. In addition the road above the Forest access point should be removed from the ciénega and rerouted on an upland alignment.

In cooperation with the U.S. Forest Service, the U.S. Fish and Wildlife, New Mexico Department of Game and Fish, The Nature Conservancy, and the property owner, Sky Island Alliance developed a restoration plan to restore a more natural hydrological regime to the Cloverdale Creek and its associated wetlands, and to provide improved habitat for the Chiricahua leopard frog. This plan was recently funded and restoration, monitoring and management activities have commenced.

¹ Bodner, G., J. Atchley Montoya, R. Hanson, and W. Anderson, editors. 2006. Natural heritage of the Peloncillo Mountain Region: a synthesis of science. World Wildlife Fund and Sky Island Alliance, Tucson AZ.

² New Mexico Steering Committee and Intermountain West Joint Venture. 2005. Coordinated implementation plan for bird conservation in western New Mexico.

³ Lyons, P. D., A. Goldberg; and G. Bodner. A cultural crossroads: the Peloncillo Conservation Planning Area. Unpublished report by Sky Island Alliance and A.E.O. Anthropological Consulting, L.L.C.

⁴ Numerous books have been written about the Apaches and their battles with U.S. troops. The following provided information for this piece and are recommended:

Kraft, L. 2000. Gatewood and Geronimo. University of New Mexico Press, Albuquerque, NM.

Utley, R. M. 1977. A clash of cultures: Fort Bowie and the Chiricahua Apaches. Office of Publications, National Park Service, Washington, DC.

⁵ Hadley, D. Paleoindian to present. Found at <http://www.cuencalosojos.org/web/default.aspx> (23 April 2007).

⁶ Marshall, R.M., D. Turner, A. Gondor, D. Gori, C. Enquist, G. Luna, R. Paredes Aguilar, S. Anderson, S. Schwartz, C. Watts, E. Lopez, P. Comer. 2004. *An*

Ecological Analysis of Conservation Priorities in the Apache Highlands Ecoregion. Prepared by The Nature Conservancy of Arizona, Instituto del Medio Ambiente y el Desarrollo Sustentable del Estado de Sonora, agency and institutional partners. 152 pp.

⁷ Trevor Hare, personal communication, September 2006.

⁸ Data as of August 2004.

⁹ Curtin, C. G. 2003. Fire as a landscape restoration and management tool in the Malpai Borderlands. Pages 79-87 in Galley, K. E. M., R. C. Klinger, and N. G. Sughara, editors. Proceedings of Fire Conference 2000: the first national congress on fire ecology, prevention, and management. Miscellaneous Publication No. 13, Tall Timbers Research Station, Tallahassee, FL.

¹⁰ Bodner et al (2006).

¹¹ Important Bird Area information from National Audubon Society (2004) at <http://www.audubon.org/bird/iba/index.html>. 2004. (Consulted on 26 March 2007).

¹² Both of these affected species come from Narca Moore-Craig, personal communication, February 2007..

¹³ Marshall et al (2004).

¹⁴ Affected quail species come from Narca Moore-Craig, personal communication, February 2007.