

The Greater Gila Bioregion: America's First Wilderness

A Vision for the Next One Hundred Years



A Report from WILDEARTH GUARDIANS
By Bryan Bird, MS and John Horning
March 2, 2009



MISSION STATEMENT

WildEarth Guardians protects and restores the wildlife, wild places and wild rivers of the American West.

Inquiries about this report and WildEarth Guardians' work can be made directly to:

Bryan Bird
WildEarth Guardians
312 Montezuma Avenue
Santa Fe, NM 87501
505-988-9126 x1157
bbird@wildearthguardians.org

Photos: Front cover, Jess Alford; Back cover, John Horning.

©WildEarth Guardians. All rights reserved.

Table of Contents

Introduction	1
Greater Gila Bioregion Special Values	3
· Public Lands	3
· Biodiversity	5
· Profiles of Select Species of Concern	6
· Streams and Rivers	8
· Recreational Values	9
· Native Peoples and Western Heritage	10
Threats	12
· Population Growth	12
· Public Lands Grazing.....	13
· Fire	14
· Off-Road Vehicle Recreation	14
· Mining.....	15
The Next One Hundred Years	16
· Wilderness Expansion and Grazing Permit Retirement	16
· Restoration of Natural Processes	17
Conclusion: A Re-Birth of Leopold’s Vision in the Land that Inspired It.....	18
Citations.....	19

Introduction

An unrivaled diversity of plants and animals, the birthplace of the national wilderness system, unparalleled opportunities for solitude and a benchmark for our commitment to our nation's enduring heritage: this is the Greater Gila Bioregion. Defined by its ecological, historical and cultural significance, this bioregion, from its rugged pine and spruce forested mountain peaks to the juniper and yucca studded lowlands, is a landscape of enchanting variety and beauty. The bioregion is more than 10 million acres in whole, sixty-five percent of which is public lands.

Located in southwestern New Mexico and southeastern Arizona, the Greater Gila Bioregion is the southern pearl in a string of natural heritage sites that run along the spine of North America's Rocky Mountains. Nearly all of these iconic western landscapes have been protected as National Parks from Banff National Park in Canada, and Glacier, Yellowstone, and Rocky Mountain National Parks in the United States, down to the Sierra Madre in Mexico. Together these last, truly wild landscapes make up a select list of protected areas whose outstanding natural and cultural resources form a common North American heritage.



In addition to being an ecological gem, the Greater Gila Bioregion is the birthplace of America's wilderness movement. (photo: John Horning)

experiences in the Greater Gila Bioregion shaped his eloquent plea for a new land ethic to guide conservation. Named in his honor, the Aldo Leopold Wilderness lies within the boundaries of the Gila National Forest and in combination with the adjacent Gila Wilderness, the two are considered the starting point for the modern American wilderness-conservation movement.

The heart of the Bioregion is the Gila River and its headwater tributaries, which begin in the Gila National Forest, which was created on March 2, 1899 to protect the watershed of the Gila River and its adjacent lands. The river is an ecologically diverse ribbon of life in an otherwise arid landscape. The river provides sustenance to a rich variety of plants and animals within the forest including more than 300 species of birds, numerous threatened and endangered species and one of the most intact native fish communities in the entire Southwest. Extensive roadless areas, congressional wilderness areas, old growth forests, as well as iconic species including the Mexican gray wolf, jaguar, Mexican spotted owl and endemic trout make the Greater Gila Bioregion distinct, with the potential to be the crown jewel of a wild southwest.

In addition to being an ecological gem, the Greater Gila Bioregion is the birthplace of America's wilderness movement. Established in 1924, the Gila Wilderness was the first administratively designated wilderness in the country as a result of a campaign initiated by Aldo Leopold, then a forester on the Gila National Forest. Leopold is an icon of conservation in the United States whose

Unfortunately, the jewels of the Greater Gila Bioregion have been tarnished, and these values—historic, cultural and ecological—are threatened. Climate change is threatening the resiliency and biodiversity of the river and forests. Off-road vehicles present a hazard to the Greater Gila Bioregion's wildlife. But the longest standing threat to the Greater Gila Bioregion is conflict with domestic livestock production. The Greater Gila Bioregion is home to the Blue Range Wolf Recovery Area and the eleven year-old Mexican gray wolf recovery program is fairing poorly in the face of conflict and inadequate political support for wolves. Under pressure from the livestock industry, Mexican gray wolves have been increasingly scapegoated for problems and, if trends continue, will be driven to extinction in the wild for the second time.

On the 110th anniversary of the Gila National Forest, WildEarth Guardians proposes a new direction for the Greater Gila Bioregion. We proclaim the need for a renewed commitment to the region's unmatched natural heritage, as new threats and old ones endanger its tremendous biological diversity. We believe by adding the bioregion's 2.2 million acres of roadless lands to the nation's wilderness preservation system, we can preserve its remaining wildness. Similarly, we believe Congress should authorize a voluntary grazing permit retirement program to allow for the equitable resolution of longstanding conflicts between the needs of ranchers and the needs of wildlife. Both of these policy shifts will help to ensure that the Greater Gila Bioregion's globally significant plant and animal populations—from wolves to cutthroat trout—endure for its next 110 years, and help realize the land ethic that Leopold so importantly defined.

Greater Gila Bioregion Special Values

- **Public Lands**

One hundred ten years ago, the Gila River Forest Reserve was established on March 2, 1899 by the General Land Office and later, in 1905, it was renamed the Gila Forest Reserve. The following year the forest was transferred to the U.S. Forest Service, and on March 4, 1907 it became a National Forest.¹ The Gila National Forest, and more broadly the Greater Gila Bioregion, is at the epicenter of America's public lands



The Gila National Forest, and more broadly the Greater Gila Bioregion, is at the epicenter of America's public lands legacy. (photo: John Horning)

legacy and where some of our greatest conservation champions began to craft their vision for watershed, wilderness and wildlife protection. Champions like Teddy Roosevelt, Gifford Pinchot and Aldo Leopold understood the public benefits of putting aside vast areas for protection of favorable water flows and abundant fish and wildlife. Passage of the Federal Forest Reserve Act of 1891 gave presidents the authority to set aside timberlands from the public domain. And in 1897 by law completely closed them to public use, devoid of management or supervision. Congress defined the purpose of the reserves as "watershed protection and source of timber supply for the nation" in the Forest Management ("Organic") Act.²

The concept and practice of the "public domain" in the southwest began when the United States acquired the territory comprising Arizona and New Mexico by treaty with Mexico in 1848 and lands that were not already owned by private individuals, including earlier Spanish and Mexican land grants, nor reserved by treaty for various Indian tribes became a part of the "public domain."³

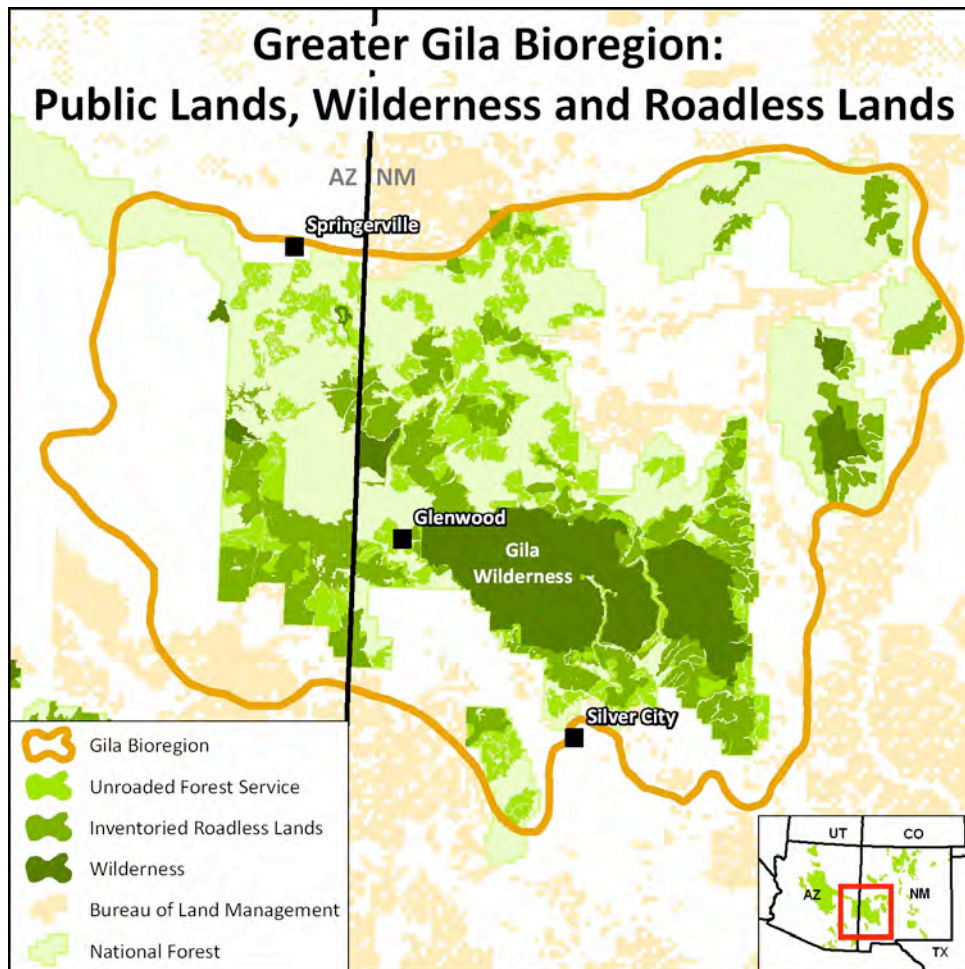
The Greater Gila Bioregion is one of the largest complexes of public lands—managed for the greatest good of the greatest number of Americans—in the West, over six million acres managed by the Forest Service, Bureau of Land Management (BLM) and Park Service. These public lands consist of portions of the Gila National Forest and the Cibola National Forest in New Mexico, the Apache-Sitgreaves National Forest in Arizona, state lands and lands managed by the BLM. There are private

¹ Davis 2005.

² Baker et al. 1998.

³ Ibid.

lands and the Fort Apache and San Carlos tribal lands as well. The Gila National Forest, however, forms the core of this special place.



Courtesy: Kurt Menke, Bird's Eye View

The unusual character and unique wildlife and plants of the national forest and BLM lands of the Greater Gila Bioregion set them apart from others in the United States. Great volcanic spires, spectacular cliff formations, steep mountain valleys, ribbons of shallow desert streams, and snowy peaks make this bioregion a stunning, rugged part of the western landscape. The lowest elevations at 4,000 feet are found along the desert floors of the many canyons and valleys. Here, the

climate is mostly arid; the environment consists of piñon-juniper-oak woodlands or open grassland. Mountain elevations rise to more than 11,000 feet at the top of Mount Baldy in the Apache National Forest. Ponderosa pine forests are most common between 5,500 and 6,500 feet. In the uppermost elevations, pine forests give way to spruce, fir, and aspen groves.

The first Wilderness Area on any national forest in the nation was established on the Gila National Forest. In 1922, Aldo Leopold, at that time Assistant Regional Forester, made an inspection trip to the "Gila River headwaters country," and upon his return he proposed to set aside some 500,000 acres as untrammelled wilderness.⁴ In 1924, the Forest Service administratively designated the Gila Wilderness. Today more than one million acres of the Greater Gila Bioregion are currently protected as wilderness with at least another 2.2 million acres of land still eligible and in need of protection. Three different wilderness areas in the Gila National Forest form its heart: the Gila

⁴ Ibid.

(558,065 acres), Aldo Leopold (202,016 acres), and Blue Range Wilderness areas (29,304 acres). Two more Wilderness Areas anchor the far northern reaches of the bioregion: the Apache-Kidd (44,626 acres) and Withington (19,000 acres) on the Cibola National Forest. On the Arizona side, there are three wildernesses and a primitive area managed by the Apache-Sitgreaves National Forest—the Blue Range Primitive Area (173,762 acres), the Bear Wallow Wilderness (11,080 acres), Mt. Baldy (7,079 acres) and Escudilla (5,200 acres). All of these wilderness areas are bounded by contiguous roadless lands that build on their ecological, recreational and wild character.

In addition, numerous BLM-managed Wilderness Study Areas (WSA), Areas of Critical Environmental Concern (ACEC) and Special Management Areas (SMA) are found within the bioregion. These include 192,533 acres in six WSAs including Continental Divide, Devil's Backbone, Devil's Reach, Eagle Peak, Horse Mountain, and Mesita Blanca; 64,685 acres in the Horse Mountain ACEC; and 86,778 acres in three SMAs including Cerro Pomo, Pelona Mountain and Puertocito. All of these ecologically and recreationally significant areas add up to nearly a quarter million acres in Socorro and Catron Counties managed by the BLM Socorro Field Office.

The unsurpassed assemblage of public lands and biodiversity in the Greater Gila Bioregion that inspired the modern conservation ethic embodied by Leopold deserves careful consideration for full protection. The spectacular rivers, mountains, and wildlife of the Greater Gila Bioregion can continue to provide for future generations, but doing so requires a shift to a more pro-conservation management paradigm.

- **Biodiversity**

The Greater Gila Bioregion is a land of forests beyond measure, snow covered peaks, vast grasslands peppered with old growth ponderosa pine and rock-rimmed river canyons. The evocative howl of the Mexican gray wolf, once extirpated, again echoes in portions of this landscape. The Greater Gila Bioregion supports a wide array of wildlife and plants due to its topographic diversity as well as its distinctive locale at the intersection of four diverse eco-regions: the temperate Rocky Mountains and sub-tropical Sierra Madre Occidental on the north and south, and the drier Chihuahuan and Sonoran Deserts on the east and west. This mixing of ecological ingredients and elevation gradient is truly without equal anywhere in the world.

Wolf, jaguar, black bear, cougar, elk, deer, bighorn sheep, turkey, javalina, porcupine, southwestern willow flycatcher, Chiricahua leopard frog, over 30 species of fish, and various cacti, grasses, shrubs, and trees populate the Greater Gila Bioregion. More than 500 species of vertebrates, of which 306 are birds and 45 of which are classified sensitive, threatened, or endangered, inhabit the bioregion.⁵ The wildlife of the bioregion is largely intact because of the presence of large tracts of public land, but several iconic animals are endangered or threatened, somewhat restored or still missing entirely from the assemblage. Endangered or threatened species include the Mexican gray wolf, jaguar, aplomado falcon, Mexican spotted owl, Gila chub, Gila topminnow, loach minnow, Gila trout, the southwest willow flycatcher, Chiricahua leopard frog and two species of bat. Restored to the Greater

⁵ BISON-M 2008.

Gila Bioregion is the Mexican gray wolf. Still missing from the system are the jaguar, grizzly bear and black-footed ferret. The bioregion's fish are in particular trouble:

"The Gila River is the only U.S. river basin with all 47 of its freshwater fish species extinct, listed as threatened or endangered, or recommended as candidates of such listings."⁶

- **Profiles of Select Species of Concern**

The **canyon tree frog** requires temporary or permanent pools in rocky arid scrub and mountains in a wide range of elevations from about 900 feet to 9,000 feet. It is found in rocky canyons and along intermittent or permanent streams and frequents arroyos in semi-arid grassland, streams in piñon-juniper and pine-oak woodlands in the U.S. It is primarily terrestrial and breeds in pools along canyon-bottom streams.⁷



Jim Rorabaugh - USFWS

The **Chiricahua leopard frog** is a federally threatened amphibian and is listed by the U.S. Forest Service Southwestern Region as sensitive that ranges from Arizona and New Mexico into Mexico. Its populations are declining in the U.S., due partly to effects of habitat loss and degradation, introduced bullfrogs and fishes, and possibly environmental contaminants and disease. This frog occurs in a wide variety of habitats and altitudes in pine and pine-oak forests with permanent water ponds as well as montane streams. It breeds in a wide variety of aquatic habitats, ranging from stock ponds, reservoirs, and lakes to spring-fed streams⁸

The **Gila trout**, a threatened species, is endemic to five streams in the upper Gila River system. The population decline is attributed to erosion, sedimentation, predation by and competition and hybridization with nonnative fishes.⁹

The **loach minnow** is a threatened fish found in waters of the Greater Gila Bioregion in both Arizona and New Mexico. This small fish has been extirpated from 80-85 percent of former range, due to damming, stream channelization, excessive water withdrawal resulting in dewatering of habitat, and effects of exotic fishes.¹⁰

The **Jaguar** once occurred in New Mexico and Arizona and occasionally is still encountered in the far southern reaches of Arizona. This wildcat is listed as endangered but does not have critical habitat designated. The jaguar feeds on large and small mammals, likely including the javalina, reptiles and ground nesting birds.

⁶ Floyd 2006.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.



USFWS

The **Mexican gray wolf** or *lobo* once roamed by the thousands across portions of Arizona, New Mexico, Texas, and Mexico. The *lobo* declined, and was eventually exterminated, as a direct result of concerted federal eradication efforts undertaken on behalf of American livestock interests. By 1970, the *lobo* had been completely eradicated from the United States and suffered a similar fate in Mexico by the early 1980s. The Mexican gray wolf was then, and currently remains, one of the most endangered mammals in North

America. Wolves prey mostly on large ungulates such as elk, deer, and sheep. They are also known to hunt rabbit, beaver, and other small rodents when ungulates are scarce.



Peter Stacey

The **Mexican spotted owl**, a threatened species, lives in the Greater Gila Bioregion. A little more than half of the U.S. Mexican spotted owl population occurs in the Upper Gila Mountains Recovery Unit in Arizona and New Mexico.¹¹ Mexican spotted owls are widely distributed and use a variety of habitats within the Recovery Unit and federal lands, mostly national forests, encompass 44% of this Unit.¹² One of the principal causes of the owl's threatened status is habitat loss and much of the prey base of this species relies on riparian habitat and associated meadows. The Mexican spotted owl recovery plan listed wide scale, stand-replacing fire as the primary threat to this species across its range as well as secondary threats including, timber or fuelwood harvest that either directly affects habitat within a territory or indirectly affects the owl by collateral activity adjoining

owl territories; urban and rural land development; livestock and wildlife grazing; and recreation involving both consumptive and non-consumptive activities.¹³



The **Southwestern willow flycatcher** is an endangered bird that occupies the Greater Gila Bioregion. The largest population in New Mexico is along the upper Gila River in the southwestern part of the state. Habitat loss and degradation has caused significant declines in range and abundance in riparian areas of the American southwest; cowbird parasitism is also a problem. An estimated 1200-1300 pairs remain, more than half of which are confined to only ten breeding sites.¹⁴

The **spikedace**, a threatened species, has critical habitat designated in Gila National Forest and Gila Wilderness and is endemic to the Gila River basin. Stream flow depletion, diversion, habitat alteration, and competition with nonnative fishes are responsible for the decline of this species.¹⁵

¹¹ NatureServe 2009.

¹² USDI Fish and Wildlife Service. 1995

¹³ Ibid

¹⁴ NatureServe 2009.

¹⁵ Ibid.

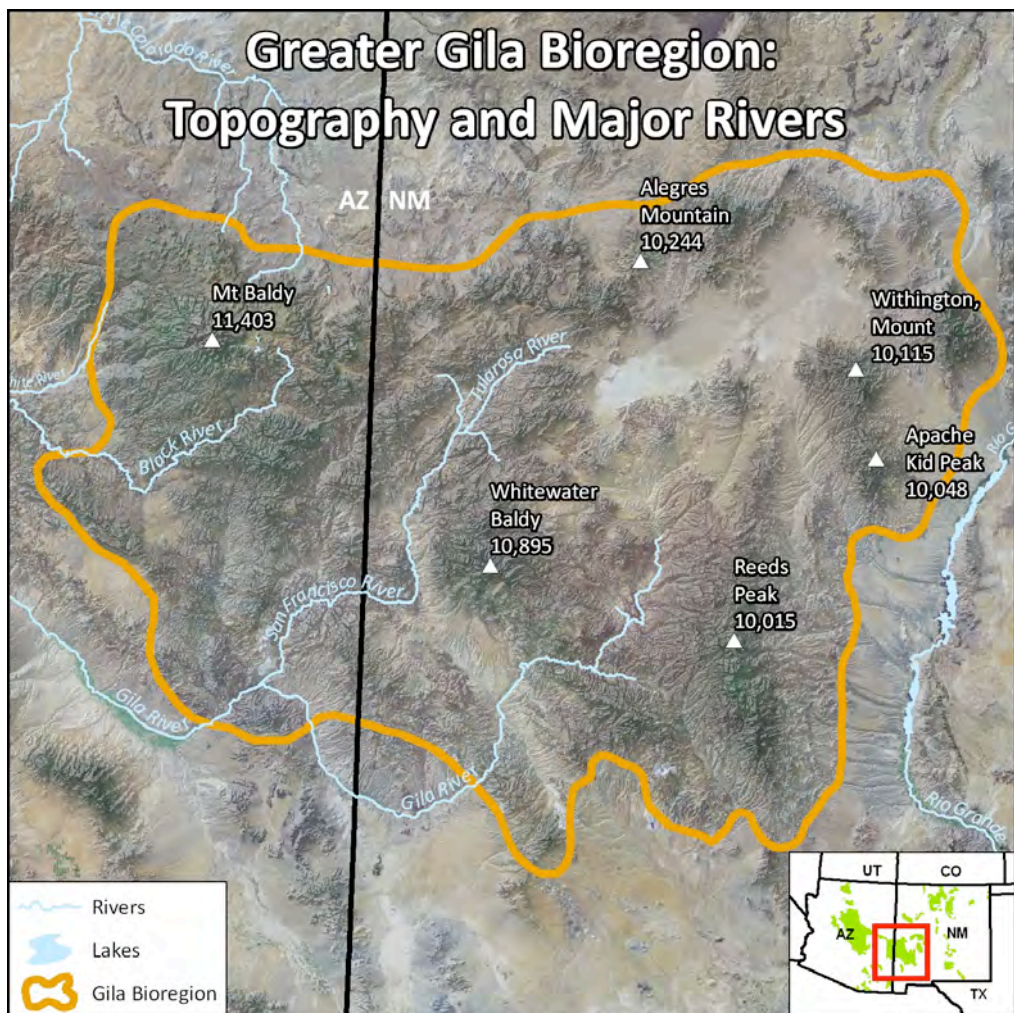
The **western chorus frog** is found in Arizona and New Mexico in montane streams, wet meadows, ciénegas, roadside ditches, and livestock tanks in oak, pine-oak, ponderosa pine, Douglas-fir, and other forest types, mostly above 5,000 feet. Its breeding sites usually are in temporary waters, including shallow flooded areas and stream pools and it can climb high into trees. Non-native predators, such as crayfishes and bullfrogs, are a potential threat.¹⁶

Numerous sensitive reptiles inhabit the Greater Gila Bioregion including **desert kingsnake** and **Texas horned lizard**; both are listed by the U.S. Forest Service Southwestern Region as sensitive.

- **Streams and Rivers**

The Greater Gila Bioregion straddles the northern Chihuahuan Desert, the largest desert ecosystem in North America and the Colorado Plateau and thus receives very little precipitation. All but the highest peaks receive less than 12 inches annually. The protection of this desert ecosystem's water is obligatory for its biodiversity as well as the human populations that depend on its waters or recreate there.

The Gila River and its headwater tributaries—the East, West and Middle Forks—merge to become the dominant river of the region. It eventually flows out of New Mexico on its 649-mile journey to the Colorado River near Yuma, Arizona. This river has been named one of



Courtesy: Kurt Menke, Bird's Eye View

¹⁶ Ibid.

America's most endangered. The Greater Gila Bioregion's rivers, such as the San Francisco, the Blue and their tributaries are largely undammed and free flowing, a rare circumstance in the West. However, the threat of damming or massive diversion of the Gila moved closer in 2004 when Congress approved the Arizona Water Settlements Act. The Act settled claims with several Indian tribes and affirmed New Mexico's right to take about 14,000 acre-feet of water from the Gila and its tributary, the San Francisco.¹⁷ The Gila River served as a part of the border between the United States and Mexico after the Treaty of Guadalupe-Hidalgo in 1848 until the Gadsden Purchase of 1853 extended American territory south of the Gila.

- **Recreational Values**



The chief human use of the Gila and Apache National Forests, BLM lands as well as the roadless and wilderness areas is recreation. (photo: John Horning)

The chief human use of the Gila and Apache National Forests, BLM lands as well as the roadless and wilderness areas is recreation. Approximately 1.34 million individuals visit the Gila National Forest annually.¹⁸ The recreational use is quite varied and includes camping, hiking, birding, rock hounding, swimming, boating, nature observation, horseback riding, hunting, fishing, backpacking, cross-country skiing, snowshoeing, and bike riding. Most people visit the Gila National Forest for picnicking and family day gatherings, hiking and walking, or hunting with about 25 percent staying

overnight on the forest.¹⁹ These recreational opportunities draw people from across the country and are a significant source of income for the local economy; on average people visiting the Gila National Forest spend \$94 per visit.²⁰ The Gila wilderness receives the most visitors of the three wilderness areas on the National Forest and recreation is year-round. There are nearly one million acres of inventoried roadless forest lands on the New Mexico side that generate 559 jobs and \$13 million in annual income to the five Greater Gila Bioregion counties.²¹ Numerous local outfitters lead excursions into the Greater Gila Bioregion and many businesses provide services for visitors to the area.

In the West, the presence of public lands is a benefit to economies. Counties with more than 60 percent of land in public, protected status (Wilderness, National Park, National Monument, etc.) have been demonstrated to increase personal income faster than in those with less than 10

¹⁷ American Rivers 2008.

¹⁸ USFS 2002.

¹⁹ USFS 2002.

²⁰ Stynes 2005.

²¹ Berrens et al 2006.

percent.²² In the West, generally, only 8 percent of personal income is generated from wood products, agriculture, including ranching, and mining, whereas 92 percent comes from the remainder of the economy.²³ Quantifiable economic benefits and community effects of protecting undeveloped roadless forests include water quality, carbon sequestration, on-site outdoor recreation, passive uses, gain in local property values, jobs and personal income.²⁴

The Gila Cliff Dwellings National Monument, designated by Teddy Roosevelt by proclamation on July 23, 1908, is located near the middle of the Gila Wilderness. Native Americans inhabited this 46-room enclosure from the late 13th to early 14th centuries. Because the dwellings are surrounded by wilderness areas, the environment appears much as it did when originally inhabited. Retaining the original character of the place is important to the continued significance of this National Monument.

- **Native Peoples and Western Heritage**

At least five known cultures have inhabited the Greater Gila Bioregion including three prehistoric Native American cultures. The Greater Gila Bioregion boasts a rich history of the Mogollon, Mimbres and Apache indigenous peoples, Spaniards, Mexicans, ranchers, prospectors, miners and conservationists. Several legendary Apache Chiefs spent significant time in the Greater Gila Bioregion including Geronimo and Victorio.



The Gila Cliff Dwellings National Monument was inhabited by Native Americans from the late 13th to early 14th centuries. (photo: Jess Alford)

The Mimbres branch of the Mogollon culture was centered in the Mimbres Valley encompassing the upper Gila River and parts of the upper San Francisco River in southwestern New Mexico and southeastern Arizona from about 1000 to 1250 AD. The Mimbres peoples are famous for their pottery and their water control structures used in agriculture. There are several archeological sites of the Mimbres culture at the Gila Cliff Dwellings National Monument.

The Greater Gila Bioregion has a rich tradition of wilderness and wild areas that embody our American heritage and provide economic opportunity. A seminal conservation figure, ecologist and author of the Sand County Almanac Aldo Leopold spent time in the Greater Gila Bioregion and started the national wilderness system here. Leopold started his career in the American southwest on the Apache National Forest in 1909, became supervisor of the Carson National Forest at age 24,

²² Sonoran Institute 2006.

²³ Rasker et al. 2008.

²⁴ Berrens et al. 2006.

and served for 19 years in the American southwest until he was transferred in 1928.²⁵ An advocate for the preservation of wildlife and wilderness areas, Leopold became a founder of The Wilderness Society in 1935.²⁶

Former Supreme Court Justice William O. Douglas may have captured the feeling of wilderness best when he said, "Wilderness helped preserve man's capacity for wonder ... the power to feel, if not see, the miracles of life, of beauty, and of harmony around us."²⁷

²⁵ Aldo Leopold Foundation 2008.

²⁶ Ibid.

²⁷ USFS 2008.

Threats

- **Population Growth**

Nearly two million people live in New Mexico, up 8 percent statewide since the year 2000 and over six million people live in Arizona (U.S. Census Bureau, 2008).²⁸ The counties that encompass the Greater Gila Bioregion—Catron, Grant, Socorro, Sierra, and Hidalgo in New Mexico and Greenlee and Apache in Arizona—still have very low population densities ranging from less than one person/mi² to eight persons/mi² and total populations ranging from a low of 3,543 to a high of 69,000 individuals (U.S. Census Bureau, 2008).²⁹ However, between 1990 and 2000, the population of Catron County grew 38 percent and that of Grant County increased 12 percent. The cities and towns that are found in the bioregion are growing with Silver City at about 10,000 people. The largest nearby cities include Las Cruces, with a population of around 86,000, and Tucson with a population of around 519,000 (U.S. Census Bureau 2008).

Despite relatively low population densities in the counties that include the Greater Gila Bioregion, people continue to move into the area and build homes and infrastructure that create obstacles for wildlife movement and management of natural processes such as fire. New Mexico has 24,899 residences in its wild land urban interface (the area where residential housing and infrastructure mingle with undeveloped wild lands) of which 34 percent are seasonal homes or cabins, and the state ranks eighth among western states in the number of homes built in forested areas next to public wildlands.³⁰ Arizona has 54,634 residences in its wildland urban interface, of which Apache County has 2,744 residences in the wildland urban interface with 52 percent seasonal homes or cabins.³¹ Catron County still has 87 percent of its private lands in the wildland urban interface in an undeveloped condition while Greenlee and Apache Counties have more than 80 percent each in an undeveloped condition.³²

As more people come to the Greater Gila Bioregion for its amenities and flavor of the old West, more pressure will be placed on the natural resources, likely restricting the ability of federal land managers to allow nature its own destiny.

²⁸ <http://www.census.gov/>

²⁹ Catron County in New Mexico has the lowest population density with less than 1 persons/mi² and a total of 3,543 persons, Socorro with 3 persons/mi² and a total of 18,078 persons, Sierra with 3 persons/mi² and a total of 13,270 persons, and Grant with 8 persons/mi² and a total of 31,002 persons and in Arizona, Greenlee County, Arizona 5 persons/mi² and a total of 8,547 persons and Apache County, 6 persons/mi² and a total of 69,423 persons. (U.S. Census Bureau 2008).

³⁰ Headwaters 2008.

³¹ *Ibid.*

³² *Ibid.*

- **Public Lands Grazing**



Federal public lands grazing has an enormous impact on the Greater Gila Bioregion. (photo: Bryan Bird)

Federal public lands grazing has an enormous impact on native species, water use, large carnivores, fire ecology, and aquatic ecosystems in the Greater Gila Bioregion.³³ Hundreds of species and entire landscapes are affected by grazing. The livestock sector is responsible for an estimated 55 percent of sediments, 32 percent of nitrogen and 33 percent of phosphorous deposited into freshwater nationwide.³⁴ Livestock, directly and indirectly, affect all of the most critical drivers of biodiversity

loss including habitat change, climate change, invasive species introduction and spread, overexploitation and pollution.³⁵ In addition, livestock have greatly modified important natural processes that regulate ecosystem structure such as wildfire. Domestic livestock can reduce fine fuels (e.g., grasses) that carry natural, “cool” burning, ground-crawling fires that clear western forests of dense understory, pathogens and insect pests. Grazed forests burn less frequently, become unhealthy, dense with overgrowth, and vulnerable to catastrophic, hot wildfire that carry into the forest canopy and burn down entire forests.³⁶

Another major harmful effect of public lands ranching in the Greater Gila Bioregion is suppression of native carnivores, namely Mexican gray wolves. Efforts to reintroduce the Mexican wolf in the Greater Gila Bioregion began in 1998, with the goal that, by the end of 2006, the wild wolf population would number 102 animals, with 18 breeding pairs. The U.S. Fish and Wildlife Service (FWS) has released approximately 99 Mexican wolves into the designated recovery area since 1998. Many of these wolves have bred and successfully raised pups. However, today only approximately 50 wolves remain in the wild. This is due to a schizophrenic reintroduction program that has FWS releasing wolves on one hand, and simultaneously removing them with the other. To date, FWS has killed or removed approximately 70 wolves in response to vociferous complaints from public lands ranchers that graze cattle on U.S. Forest Service lands in the wolf recovery area. From 1998 to 2004, FWS removed only 25 wolves from the recovery area for conflicts with livestock. The rate of wolf removal increased after 2005, with the agency removing 45 Mexican wolves from the recovery area

³³ See Wuerthner, G. and M. Matteson (eds.). 2002; Donahue, D. L. 1999; Belsky, A. J., A. Matzke, S. Uselman. 1999; Fleischner, T. L. 1994

³⁴ FAO 2007.

³⁵ Ibid.

³⁶ See Belsky, A. J., A. Matzke, S. Uselman. 1999.

due to conflicts with livestock.³⁷ Until public lands grazing conflicts are resolved in the Greater Gila Bioregion, wolves are threatened with a second extirpation from the Southwest.

- **Fire**

Until recent times, misguided management of natural resources in the Greater Gila Bioregion has left the bioregion in a depleted condition in part due to the deficiency of natural fire. The once grand ponderosa pine forests face the threat of unnatural, catastrophic fire every season, endangering many species from Northern Goshawk and Mexican spotted owl to Gila trout. This dire situation can be attributed principally to the loss of natural regulatory processes such as fire, which resulted from fire suppression, overgrazing, and logging of the mature and more fire resistant forests.

However, the Gila National Forest, and to a lesser degree the Apache National Forest, have begun the process of reintroducing natural fire into the ecosystems that evolved with this important life force and other public land managers are following suit. The Gila National Forest managed more acres with controlled burns than any other in Arizona or New Mexico and has been pioneering this practice since the middle of the last century. Grasslands, woodlands and forests all evolved in the Greater Gila Bioregion with fire as a predominant regulating force. With regular fire intervals, fuels were kept in check and grasses renewed. Many of the plants and animals of the bioregion evolved under these conditions and have suffered with the changes resulting from fire suppression, grazing and unsustainable logging.

- **Off-Road Vehicle Recreation**

Off-road vehicle (ORV) recreation, though still a small segment of overall public land use, is growing in popularity and poses a grave threat to the Greater Gila Bioregion. Damage from ORVs is often disproportional to their size and number and includes:

- Damage to soil, watershed, riparian, vegetation and of other forest resources;
- Disruption of wildlife and their habitat;
- Conflicts with other recreational users of the forest such as hikers, horse riders, birders, hunters, campers, bicyclists, etc.;
- Proximity to populated residential communities adjacent to the forest;
- Damage to cultural resources such as archaeological sites;
- Public safety hazards (from unsafe or unmaintained roads); and
- Redundant roads and trails and road densities in general.



Off-road vehicle use poses a grave threat to the Greater Gila Bioregion.

³⁷ USDI Fish and Wildlife Service 2008.

Off road vehicle recreation in Greater Gila Bioregion, and its concomitant damage, has increased dramatically in the last decade. Despite the extent of their destruction, ORV drivers remain in the minority of users of the Gila National Forest. According to the most recent Gila National Forest Visitor Use Monitoring report, less than 2 percent of forest visitors listed "Off-highway vehicle travel (4-wheelers, dirt bikes, etc)" as their "primary activity."³⁸

- **Mining**

In the late eighteenth century, the Spanish introduced intensive mining mostly of silver and copper to the Greater Gila Bioregion.³⁹ Copper mining especially grew to a viable industrial industry especially in Greenlee and Grant County which have historically depended heavily mining for jobs and income. While Greenlee County continues to depend on mining and on one employer in particular, Grant County has diversified.⁴⁰ Mining proposals, including gold, continue to arise in the area and the inventoried roadless areas of the national forest lands are especially vulnerable to this development threat.

Recent interest in gold mining in the Mogollon district north of Silver City has demonstrated that this threat to the integrity of the bioregion is current. A silver corporation recently announced completion of an agreement with an exploration company with a long record of gold discovery and mine development in the western United States to acquire rights and interests in the Mogollon silver-gold district.⁴¹ The claims cover approximately 2,400 acres and 15.7 million ounces of silver and 327,000 ounces of gold from 1.7 million tons of ore came from historic production, largely from two mines between 1905 and 1925.⁴²

³⁸ USFS 2002.

³⁹ Rasker et al. 2008.

⁴⁰ Ibid.

⁴¹ Your Mining News. 2009. *Columbus Silver Options Mogollon Silver-Gold District, New Mexico*. http://www.yourminingnews.com/news_item.php?newsID=22466. Accessed February 24, 2009.

⁴² Santa Fe New Mexican. 2009. *Canadian company buys mining rights*. <http://www.santafenewmexican.com/Local%20News/Local-news-in-brief-013109>. Accessed February 24, 2009.

The Next One Hundred Years

- **Wilderness Expansion and Grazing Permit Retirement**



WildEarth Guardians is working on solutions to the Greater Gila Bioregion's threats that embrace Leopold's wilderness and land ethics. (photo: John Horning)

There is a practical solution for the next 100 years of public lands management in the Greater Gila Bioregion, one that embraces Leopold's wilderness and land ethics. The way forward is to resolve ranching conflicts in high conservation areas and those where wolves and livestock cannot co-exist and append the remaining roadless areas to the wilderness system. WildEarth Guardians is working on that solution, allowing ranchers to relinquish their grazing permits in targeted areas that are essential for wildlife survival and conservation as well as candidates

for wilderness designation. Thereafter, the wild roadless forest lands can be added to the wilderness preservation system that already forms the core of the Greater Gila Bioregion.

This concept and individual legislative proposals are advancing in Congress and are swiftly gaining acceptance by the livestock industry and among decision makers in Washington, D.C. Retirement of grazing permits would benefit struggling ranchers, support ecological restoration of public lands and keep the West's open spaces wild.

Grazing permit retirement is mutually beneficial to the interests of ranchers, environmentalists and taxpayers:

- Ranchers can retire their permits, cut their losses, and use their permit compensation to restructure their operations on private lands (without federal overseers), retire or start a new business;
- Retiring grazing permits and closing the associated grazing allotments to grazing will reduce impacts on sensitive lands, water resources and wildlife, in this case especially wolves and the accompanying political and legal strife over grazing conflicts; and
- Retiring permits/leases will reduce the cost of federal public lands management.

Congress is currently considering multiple proposals to retire grazing permits in the Cascade-Siskiyou National Monument in Oregon, and the Owyhee Canyonlands in Idaho. Both bills would allow grazing permittees to voluntarily waive their grazing permits to the appropriate managing agency in exchange for generous compensation. Conservation funders would pay the ranchers for relinquishing their grazing permits. Upon payment, the government would immediately cancel the permits and permanently retire livestock grazing on the associated allotments.

- **Restoration of Natural Processes**

A benefit of voluntary permit retirement coupled with adding roadless areas to the existing wilderness in the Greater Gila Bioregion would be that vital, natural processes such as predation and fire would be permitted to occur on larger landscapes and fulfill their roles as ecological regulators. Efforts are underway to restore natural fire regimes to the fire-dependent forest and grassland ecosystems of the Greater Gila Bioregion, but top carnivores that exert predatory influences on native herbivores are acutely lacking. Other than mountain lion, coyote and bobcat, the native predators of the Greater Gila Bioregion are absent in ecologically meaningful numbers. Scientific data increasingly indicate that carnivores play an important controlling role in an ecological system.⁴³ The best example of this control is carnivore eradication and reduction that has simplified systems and reduced biodiversity, largely by eliminating their keystone role of ungulate predation. When deer and elk numbers thrive in the absence of a key carnivore such as the Mexican gray wolf, vital plants like willow along streams and rivers can be suppressed and thus the entire riparian ecosystem become impoverished. The restoration of these natural processes is especially important to Southwestern ecosystems that will need to adapt in the face of climate change.



Restoring natural processes such as predation and fire are part of WildEarth Guardians' vision. (photo: Tim Springer)

⁴³ See Terborgh et al. 1999

Conclusion: A Re-Birth of Leopold's Vision in the Land that Inspired It



The inspiring vision of Aldo Leopold remains unfulfilled in the Greater Gila Bioregion, so WildEarth Guardians believes bold and creative action is required to realize it. (photo: Jess Alford)

The inspiring vision of Aldo Leopold remains unfulfilled in the Greater Gila Bioregion and now, on the 110th anniversary of the designation of the Gila National Forest, WildEarth Guardians believes bold and creative action is required. The bioregion is rich in biological diversity and in public lands, over six million acres. Because of these two assets the bioregion is one of the increasingly rare landscapes in the American West where we can restore and save all the ecological parts and meet the challenge inherent in both Aldo Leopold's land and wilderness ethics. Though the *lobo* has been restored to its native

landscape, its future is very uncertain. Many other species still inhabit the bioregion's wildlands and wild rivers, but their futures are not secure either.

The bioregion is at the confluence of remarkable public lands, priceless waterways and unmatched biodiversity that served as the inspiration for the modern conservation movement and the birthplace of the national wilderness preservation system. The conflict between livestock producers and wolves in the Greater Gila Bioregion could and should be equitably addressed. At the same time that Congress considers whether to authorize a voluntary grazing permit retirement program for willing ranchers, the bioregion's remaining roadless lands should be protected as wilderness, an additional 2.2 million acres. WildEarth Guardians intends to pioneer this practical and creative approach to wolf and wildland conservation. We are convinced that this approach will bring both ecological and economic benefits to the region and we are committed to fulfilling Aldo Leopold's vision for the Greater Gila Bioregion.

Citations

Aldo Leopold Foundation. 2008. <http://www.aldoleopold.org/about/AldoLeopold.pdf>. (Accessed: November 14, 2008).

American Rivers 2008. America's Most Endangered Rivers™ 2008 Edition. http://www.americanrivers.org/site/DocServer/MER_Report2008opt.pdf?docID=7681. (Accessed: November 11, 2008).

Baker, R.D., R.S. Maxwell, V.H. Treat, and H.C. Dethloff. 1998. Timeless Heritage: A History of the Forest Service in the Southwest. USDA Forest Service FS-409. <http://www.fs.fed.us/r3/about/history/timeless/pdf/cover-ack.pdf>

Belsky, A. J. and D. M. Blumenthal. 1997. Effects of livestock grazing on stand dynamics and soils in upland forests of the interior West. *Cons. Biol.* 11: 315-327.

Belsky, A. J., A. Matzke, S. Uselman. 1999. Survey of livestock influences on stream and riparian ecosystems in the western United States. *J. Soil and Water Cons.* 54: 419-431.

BISON-M. 2008. Biota Information System of New Mexico. <http://www.bison-m.org>. (Accessed November 17, 2008).

Berrens, R., J. Talberth, J. Thacher, and M. Hand. 2006. The Value of Clean Water & Wild Forests: Economic and Community Benefits of Protecting New Mexico's Inventoried Roadless Areas. Center for Sustainable Economy. September 2006.

Davis, Richard C. 2005. National Forests of the United States. The Forest History Society. <http://www.foresthistory.org/Research/usfscoll/places/National%20Forests%20of%20the%20U.S.pdf>. (Accessed: November 12, 2008).

Donahue, D.L. 1999. The Western Range Revisited: Removing Livestock from Public Lands to Conserve Native Biodiversity. Univ. Oklahoma Press. Norman, OK.

FAO 2007. Livestock's Long Shadow: Environmental Issues and Options. <http://www.fao.org/docrep/010/a0701e/a0701e00.htm>. Food and Agriculture Organization of The United Nations. Rome, 2007. (Accessed: November 13, 2008).

Fleischner, T. L. 1994. Ecological costs of livestock grazing in western North America. *Cons. Biol.* 8: 629-644.

Headwaters 2008. Home Development on Fire-Prone Lands West-Wide Summary. <http://www.headwaterseconomics.org/wildfire>. (Accessed: November 13, 2008).

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: February 23, 2009).

Rasker, R., M. Haggerty, J. Haggerty and J. van den Noort. 2008. The Economy of The Gila Region. Headwaters Economics, Bozeman, Montana.
http://www.headwaterseconomics.org/gila/economyofgilaregion_opt.pdf

Sonoran Institute. 2006. You've Come a Long Way, Cowboy: Ten Truths & Trends in the New American West. <http://sonoran.org/cowboy/>. (Accessed: November 13, 2008).

Stynes, Daniel J. and Eric M. White. "Spending Profiles of National Forest Visitors", National Use Visitor Monitoring Report. USDA Forest Service Inventory and Monitoring Institute and Michigan State Univ. 2005.

Terborgh, J., J. Estes, P. Paquet, K. Ralls, D. Boyd, B. Miller, and R. Noss. 1999. Role of top carnivores in regulating terrestrial ecosystems. In M. Soulé, and J. Terborgh, eds. Continental Conservation: Scientific Foundations Of Regional Reserve Networks. Island Press, Covelo, California, USA., 39-64.

USFS 2002. National Visitor Use Monitoring Results. 2002. USDA Forest Service Region 3. Gila National Forest. August 2002.

USFS 2008. Gila National Forest Overview. <http://www2.srs.fs.fed.us/r3/gila/about/overview.shtml>. (Accessed November 18, 2008).

USDI Fish and Wildlife Service 2008. Mexican Wolf Blue Range Reintroduction Project Statistics: Causes of Mexican wolf management removals from the Blue Range Wolf Recovery Area, Arizona and New Mexico, 1998- 2007.
http://www.fws.gov/southwest/es/mexicanwolf/pdf/MW_removals.pdf. (Accessed November 18, 2008).

USDI Fish and Wildlife Service. 1995. Recovery plan for the Mexican spotted owl: Vol.1. Albuquerque, New Mexico. 172pp.

Wuerthner, G. and M. Matteson (eds.). 2002. Welfare Ranching: The Subsidized Destruction of the American West. Island Press. Covelo, CA.

