



# The Arizona Nature Conservancy

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Additional Photos  
Upon Request

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## ARIZONA'S SAN PEDRO RIVER ECOSYSTEM FEATURED IN "LAST GREAT PLACES" CONSERVATION INITIATIVE

Arizona's San Pedro River basin is one of twelve sites selected by The Nature Conservancy from throughout the Western Hemisphere for representation in its vanguard conservation initiative to protect entire functioning ecosystems; **Last Great Places: An Alliance for People and the Environment**. The Arizona Nature Conservancy has designed the "San Pedro River Ecosystem Protection Project", to safeguard the animals, plants, and natural communities within the San Pedro River basin that are threatened with extinction throughout their global range. Working cooperatively with more than a dozen public and private-sector partners in the U. S. and Mexico, The Arizona Nature Conservancy will focus its conservation efforts over the next five years on sites within the riparian (river or streamside) corridor of the San Pedro River and its major tributaries. The Conservancy will also

strive to highlight and enhance the economic and recreational values of the river system for the people of our state. This effort represents an extension of Conservancy efforts in protecting lands and waters in the San Pedro River Watershed; in Ramsey Canyon, Aravaipa Creek, Redfield Canyon and Hotsprings Canyons (Muleshoe Ranch Cooperative Management Area), as well as the Canelo and Bingham Cienegas.

The San Pedro River ecosystem is a world-class natural treasure. Following the northward course of the San Pedro River from its headwaters in Sonora, Mexico, to the confluence with Arizona's Gila River 140 miles to the North, the basin encompasses nearly the full range of plant community types and life zones in the American Southwest. Here, the Sonoran Desert, the Chihuahuan Desert, and the Sierra Madrean and Rocky Mountains converge. Rich riparian habitats shade into desert landscapes, grassland plains give way to forested slopes furrowed by deep mountain canyons.

Along the banks of the river and its tributaries are found some of the most endangered plant communities in the world, including cottonwood-willow riparian forests and mesquite bosques (Spanish for forest). The San Pedro basin also shelters unique stream- or spring-associated wetlands, left over from the last Ice Age called cienegas--from the two Spanish words cien (meaning 100) and aguas (meaning waters). Cienegas serve as natural refuges for numerous endangered plants and animals and other wildlife. Of the sixty historically documented cienegas in southern Arizona and northern Mexico, only fifteen remain, and eight of these occur within the San Pedro River ecosystem.

Conservation in this area has become a priority because

critical aquatic and riparian habitats within the San Pedro River basin are becoming increasingly depleted, destroyed, and fragmented due to a variety of residential, agricultural, and industrial demands placed on the basin's life-giving waters. Since the turn of the century, Arizona has lost nearly 90% of its rich riparian habitats, yet over 85% of our state's wildlife depends upon these areas for survival. One of the longest undammed watersheds remaining in the American Southwest, the San Pedro is a life source for more endangered species (55) than any other basin in Arizona, as well as for an abundance of other plants and wildlife.

The watershed of the San Pedro supports over 400 different species of birds; more than half of North America's bird fauna. Nowhere else in the U.S. can you find a more diverse concentration of hummingbirds (15 species) or birds of prey (12 nesting species). The endangered cottonwood-willow and mesquite forests form a significant migratory corridor for songbirds and birds of prey, or raptors, that winter in the tropical forests of Mexico and breed during the summer months in North America. Majestic gray hawks, for example, make their way into North America along this "green corridor" each spring where they nest in the cottonwood-willow canopy and feed on lizards and other small prey found in adjacent mesquite bosques. Only fifty-five pairs of gray hawks are known to exist in North America. Eighteen of those pairs nest within the San Pedro River ecosystem.

The plight of the gray hawk and other migratory birds of the San Pedro and the urgent need for large-landscape conservation is underscored by an alarming consensus of new scientific research: fragmentation and destruction of forest habitats in the U.S.,

Mexico, Central and South America have all contributed to population declines among many migratory bird species that is real, abnormal, severe, and widespread.

The San Pedro River and its tributaries harbor four species of native fish known to occur in less than twenty sites worldwide. One tributary, the perennial stream of Aravaipa Canyon, much of which is under Conservancy and Bureau of Land Management protection, is especially noteworthy as an aquatic habitat for seven different native fish species; 25% of the native fishes known to have ever lived in Arizona. To safeguard the homelands of these endangered species and natural communities and the natural processes which will ensure their viability over the long-term within the San Pedro River basin, The Arizona Nature Conservancy will build upon it's 25 years of science-based conservation activity in the area where it has worked productively with private landowners, regulatory agencies, corporations and local, state, and federal land managers. Key areas for cooperative efforts in the "San Pedro River Ecosystem Project" are:

- **Land and Water Protection Planning:** Activities will include identifying core areas for priority protection which support globally endangered species through the Nongame Endangered Wildlife Program of the Arizona Game and Fish Department. The Arizona Nature Conservancy is also assisting the San Pedro Water Management Council as an invited member of the technical advisory team overseeing a water management study of the upper San Pedro River.
- **Land and Water Protection Management:** A major focus will be on building a network of conservation partnerships among the

various public and private land managers in the San Pedro to carry out resource management and research projects. For example, research biologists and land managers from The Arizona Nature Conservancy, the Bureau of Land Management, the U.S. Fish and Wildlife Service, and Arizona State University are consolidating their efforts to safeguard the few remaining refuges for native fish in the San Pedro watershed from displacement by invasive exotic species. The Conservancy will also develop natural resource capability in the Mexican headwaters of the San Pedro through a partnership arrangement with the Centro Ecologico de Sonora.

- **Promoting Awareness of Land and Water Protection Needs:** The Arizona Nature Conservancy will join with the educational branches of public agencies and with the Arizona-Sonora Desert Museum to foster continuing private and public awareness of the importance of biological diversity to the physical and economic well-being for ourselves and future generations.

An enormous and as yet unrealized potential exists for rural communities within the San Pedro basin to develop a nature tourism, or ecotourism, industry. **Southeastern Arizona is the number one birding site in the nation** according to a recent survey by Wild Bird Digest. Birdwatchers contribute **20 billion dollars** to the U.S. economy every year. Based on visitation figures for birdwatchers to the Conservancy's 300-acre Ramsey Canyon/Mile Hi Preserve, and his research on the economics of birding in other areas of the country, Dr. Paul Kerlinger, of the Cape May Bird Observatory, estimates that birdwatchers drawn to Ramsey and surrounding birding sites spent at least **10 million dollars** in

Cochise County in 1990.

The San Pedro is not only rich in natural attractions, it holds some of Arizona's most interesting prehistoric and historic sites which together represent a 12,000-year record of human adaptation to the natural environment. Within the 36 mile stretch of the upper San Pedro River encompassed in the Bureau of Land Management's San Pedro Riparian National Conservation Area alone are over 250 historic and prehistoric sites, including one of only four Spanish presidios in North America. Along the lower San Pedro near the town of San Manuel, ASARCO, Inc. has announced its intention to donate to The Arizona Nature Conservancy 400 acres of riparian habitat that includes a notable historic ranch building. Easily accessible to visitors from both Phoenix and Tucson, the natural area and historic structure could be restored and managed as part of a community-based nature tourism development plan. For San Manuel and other rural communities along the San Pedro, the vitality of the natural system is a foundation that will provide new, and sustainable, economic opportunities.

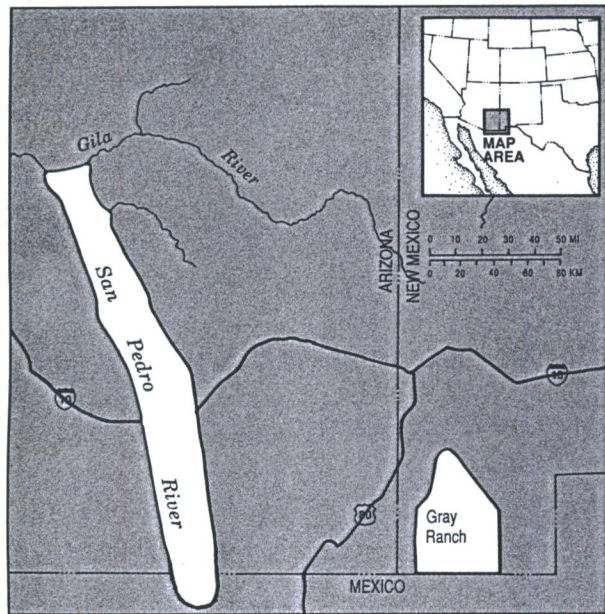
According to Dan Campbell, State Director of The Arizona Nature Conservancy, "In the San Pedro we are challenged to protect a fragile web of life that reaches beyond the boundaries of small nature preserves and across the international border. This job is simply too big, and the need too urgent, for any one agency or entity to accomplish alone. The San Pedro Ecosystem Protection Project will promote prudent management of the lands and waters that endangered plants, animals, and human communities need, not only to survive, but to prosper."

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# LAST GREAT PLACES

## SOUTHWEST ECOSYSTEMS

San Pedro and Gray Ranch



### Location:

The San Pedro River System follows the course of the San Pedro River from its headwaters in Sonora, Mexico to its confluence with Arizona's Gila River, 140 miles to the north. The neighboring Gray Ranch is located in the southwestern "bootheel" of New Mexico.

### Description:

The San Pedro River System is located within the 3,700 square-mile San Pedro River basin and includes rich streamside habitat, surrounding desert and grassland plains, and rugged mountains that form the perimeter of the basin. Gray Ranch straddles the continental divide and encompasses the entire Animas Mountain range. Its 40,000 acres of southwestern grasslands are the most extensive intact example in the world.

### Challenges:

Before The Nature Conservancy's purchase in 1990, the greatest threat to Gray Ranch was the

potential of its being broken into smaller parcels and not being managed as a single ecosystem. Today, Conservancy scientists and managers are working to assemble the biological information needed to ensure that the site's unique natural features prosper. Streamside woodlands along the San Pedro River, on the other hand, face the threat of becoming depleted, destroyed, and fragmented due to the residential, agricultural, and industrial demands being placed on the basin's life-sustaining waters.

### Action:

The Nature Conservancy will continue to cooperate with public and private agencies, organizations, and individuals to identify new areas of protection and to assist with research, monitoring, and management within already existing protected areas. In Arizona, The Nature Conservancy will assist in the development of comprehensive water resource planning by providing technical and legal expertise to private and public land managers and local decision-makers. At the Gray Ranch, the Conservancy is planning to integrate compatible economic use, such as grazing, with natural protection.

### Ecological Significance:

The San Pedro River watershed harbors 400 bird species, more than half of North America's bird fauna. The San Pedro River supports a rich aquatic and streamside habitat that includes the most extensive cottonwood-willow and mesquite riparian forests remaining in the Southwest. These endangered forests serve as a significant migratory corridor for birds that winter in the tropical forests of Mexico and breed during the Summer months in North America. Within the 321,000 acres of the Gray Ranch, 65 natural communities occur; twelve of these are globally rare. Over half of New Mexico's breeding bird species depend on the ranch during nesting season.

## SOUTHWEST ECOSYSTEMS

### Local Economy:

Agriculture and mining are the primary resource-oriented activities on lands surrounding the San Pedro River and Gray Ranch. A mild year-round climate and abundant birdwatching and camping opportunities make tourism one of San Pedro basin's most important growth industries. The lower San Pedro valley is prominent in copper production. Virtually all of the land around the Gray Ranch is dedicated to ranching.

### History:

When Spaniards came to the Southwest in the early 1600s, it was known as "Apacheria", the land of the Apache. Home to Cochise and Geronimo, the San Pedro River basin and Gray Ranch's rugged mountains provided ideal hideouts.

### Partners:

#### San Pedro River Partners

##### Public:

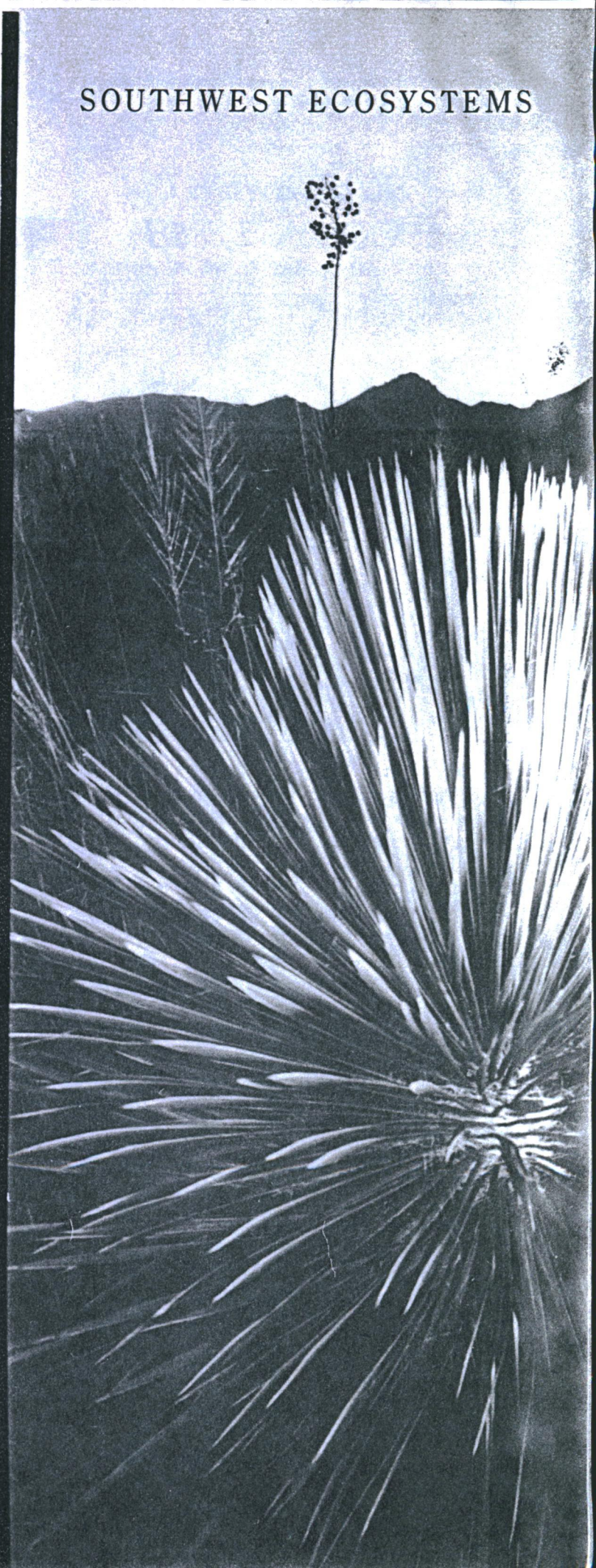
Bureau of Land Management  
Arizona Game and Fish  
Department  
Arizona State Parks Department  
U.S. Fish and Wildlife Service  
U.S. Forest Service  
Fort Huachuca Army Base  
Cochise, Graham, and Pima  
County Governments

##### Private:

Centro Ecologico de Sonora  
The Nature Conservancy  
San Pedro Water Management  
Council  
Rocky Mountain Regional Task  
Force  
The Arizona-Sonora Desert  
Museum  
ASARCO, INC.

#### Gray Ranch Partners

The Nature Conservancy will be discussing its management plans for the Gray Ranch with potential partners during 1991.







an Alliance for  
People and the  
Environment  
*The Nature*  
Conservancy

## 10 GOOD REASONS TO PROTECT THE SAN PEDRO RIVER ECOSYSTEM



Mesquite bosques (*Prosopis* spp.) - Mesquite bosques are a unique Southwestern forest type found on the higher, outer terraces of the river floodplain bordering the cottonwood-willow forests. Nearly decimated in historic times by man's drastic alterations of desert river systems, by firewood harvesting, and by the continued expansion of agriculture, the San Pedro is only one of four river systems in the United States which continue to support extensive stands of mesquite bosque. The San Pedro River Ecosystem Project offers the best opportunity to protect and restore a complete floodplain assemblage of mesquite bosque and cottonwood-willow forest.

Gray hawk (*Buteo nitidus*) - One of twelve species of nesting raptors, or birds of prey, whose survival depends upon the riparian forest habitats of the San Pedro and its tributaries. Only fifty-five pairs of gray hawks are known to exist in the United States and eighteen of that number are found along the San Pedro. As part of the San Pedro River Ecosystem Project biologists from The Arizona Nature Conservancy, the Nongame Branch of the Arizona Game and Fish Department, and the Bureau of Land Management will conduct collaborative research and monitoring programs as a basis for protection planning.

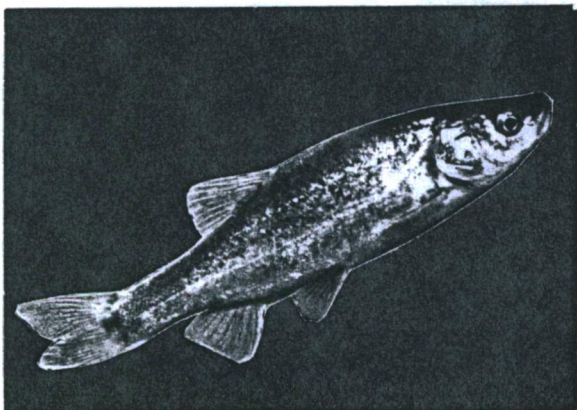


Ocelot (*Felis pardalis*) - These globally endangered felines require large territories to roam, emerging from their dense brush and forested habitat only to cross roads or fields. As they travel from habitat "island" to "island" many are killed by passing vehicles. Others are either poached for their spotted coats or caught in traps set for other animals. Two ocelots accidentally trapped in the San Pedro River riparian corridor provide evidence that the area could represent their northernmost range. A restored riparian corridor from Mexico into Arizona would offer safe passage for these rare cats.



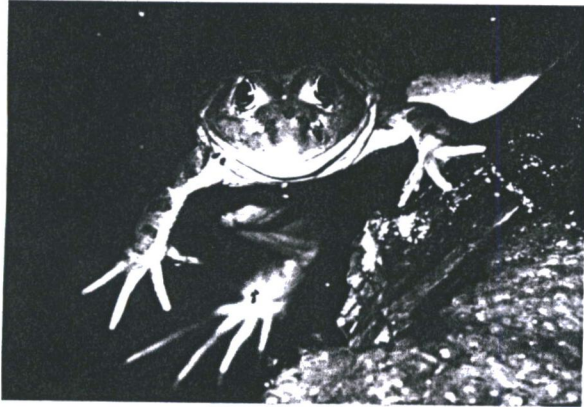
Lemon lily (Lilium parryi) - The lemon lily is the only true lily found in Arizona. Known from fewer than 40 places in the world, one of those places is the Conservancy's Ramsey Canyon Preserve within the San Pedro River ecosystem. The fate of this plant's delicate streamside habitat on the preserve is intimately linked to protection efforts made in the upland reaches of the watershed on US Forest Service lands. The Nature Conservancy and its US Forest Service partner are developing a program of controlled burning in the uplands that will restore native grasses and prevent the drastic erosion in Ramsey Creek that threatens their survival.

Cottonwood-willow riparian forests (Populus fremontii-Salix gooddingii) - Some of the best remaining examples of this globally endangered plant community occur along the San Pedro. Billowing high above the river banks, the stately cottonwoods and willows provide habitat for nearly half of North America's species of bird fauna. Together with the mesquite bosques (forests), they form a "corridor of green" that guides, shelters, and provides food for migrating birds on their route from Mexico into North America. Birdwatchers and other nature tourists are drawn to the San Pedro from all over the world and contribute millions of dollars to our state's rural economies every year.



Gila chub (Gila intermedia) - One of four globally rare species of native fish found in the San Pedro and its tributaries including the creeks of Hotsprings and Redfield Canyons on the Muleshoe Ranch Cooperative Management Area. Once widespread throughout the San Pedro and Gila Rivers of southern Arizona, gila chub are currently found in fewer than 20 sites worldwide. Thought to have been extirpated from Mexico for 25 years, a new population was recently discovered at the Los Fresnos cienega at the headwaters of the San Pedro in Sonora by a team of researchers representing the partnership between The Nature Conservancy and Mexico's Centro Ecologico de Sonora.

Blue-throated hummingbird (Lampornis clemenciae) - Fifteen of the sixteen known species of hummingbirds in the United States are found along the San Pedro and its tributaries including the Conservancy's Ramsey Canyon Preserve in the Huachuca Mountains near Sierra Vista. The blue-throated hummingbird will nest only in the forest canopy overhanging flowing rivers or streams. The San Pedro River Ecosystem Protection Project provides for water resource management planning at the state and local levels to ensure that these waters will continue to flow through protected areas while accommodating compatible human economic needs in other areas of the watershed.



Ramsey Canyon frog (Rana sp.) - The Ramsey Canyon frog is a newly discovered species found only in the waters of the Conservancy's Ramsey Canyon Preserve. Unlike other leopard frogs, the Ramsey Canyon frog vocalizes under water and instead of the usual repertoire of three or four calls, has a repertoire of at least eleven. Amphibians like this Ramsey Canyon leopard frog are the "miners' canaries" of the natural world. Because their skins are porous, toxins in the environment can decimate amphibian populations before any danger to human health becomes apparent. A worldwide drastic decline in amphibian populations in the past decade underscores the critical importance of science-based, large-landscape conservation projects.

Canelo Hills lady's tresses orchid (Spiranthes delitescens) - Nestled in the marsh grasses at the Conservancy's Canelo Hill Preserve, this delicate orchid is one of four populations known to exist on earth. A program of controlled burning at the preserve has helped to restore the conditions necessary for this rare plant to propagate.



Huachuca tiger salamander (Ambystoma tigrinum subspecies stebbinsii) - Recently discovered for the first time in the San Pedro watershed in Mexico by a team of biologists from The Arizona Nature Conservancy and Mexico's Centro Ecologico de Sonora. Previously known only from the San Rafael Valley in southern Arizona, the Los Fresnos cienega may be the salamander's only remaining natural habitat. Now, all of the known sites in Arizona are stock tanks.